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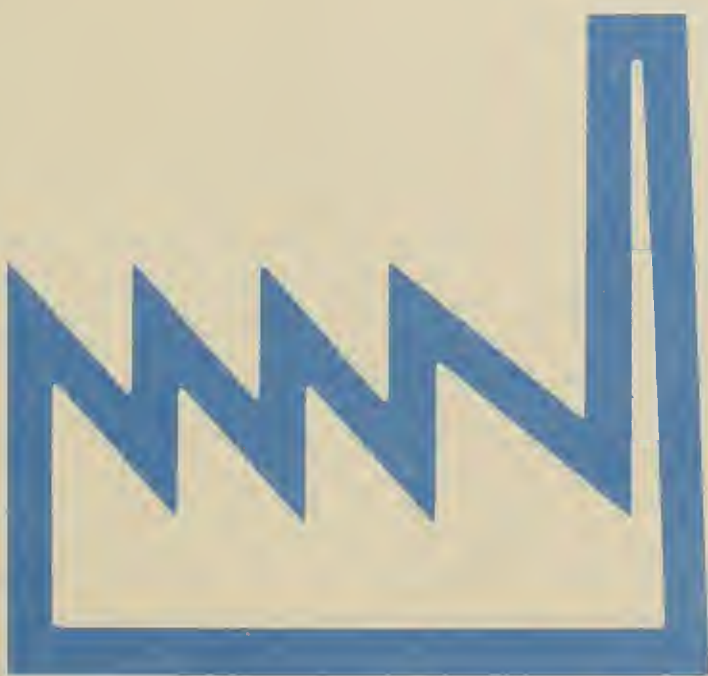
Census of Manufactures

MC82-I-33A

INDUSTRY SERIES

Blast Furnaces, Steel Works, and Rolling and Finishing Mills

Industries 3312, 3313, 3315, 3316, and 3317



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The publications
from the 1982 Economic and
Agriculture Censuses are dedicated
to the memory of Shirley Kaliek,
Associate Director for Economic Fields.
During her career at the Bureau of the
Census (1955 to 1983), she continually
directed efforts to improve
the timeliness and accuracy of
economic statistics.

1982

Census of Manufactures

MC82-I-33A

INDUSTRY SERIES

Blast Furnaces, Steel Works, and Rolling and Finishing Mills

- 3312 Blast Furnaces and Steel Mills
 - 3313 Electrometallurgical Products
 - 3315 Steel Wire and Related Products
 - 3316 Cold Finishing of Steel Shapes
 - 3317 Steel Pipe and Tubes
-

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Charles A. Waite, Associate Director for
Economic Fields

John H. Berry, Assistant Director for
Economic and Agriculture Censuses

INDUSTRY DIVISION
Gaylord E. Worden, Chief

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INTRODUCTION

ECONOMIC CENSUSES OVER TIME

The early beginnings of America's industrial output were first measured in the United States in the 1810 Decennial Census and again in 1820, when questions on manufacturing were included with those for population. Beginning with the 1840 Decennial Census, there were enumerations of manufactures and mineral industries at 10-year intervals up to and including the year 1900 for manufactures and 1940 for mineral industries. The latter census was again taken for 1954, 1958, 1963, and 1967.

Because of the increasing dominance of manufacturing in the early 20th century, Congress directed that quinquennial censuses of manufactures be taken beginning in 1905. However, from 1919 through 1939, these censuses were conducted every 2 years. The need for war-related current surveys in the early 1940's postponed the next census of manufactures until 1948 (for 1947). That census was again taken for 1954, 1958, 1963, and 1967.

Retail and wholesale trade data were first collected in 1930, and in 1933 information on selected service industries was added to the data-collection operation. These business censuses, as they were called, were again taken for 1935, 1939 (as part of the 1940 decennial program), 1948, 1954, 1958, 1963, and 1967.

Information on construction industries was obtained first in 1930 and again for 1935 and 1939. Data for the full spectrum of construction industries were not gathered again until 1968 (for 1967).

The need for transportation data to supplement information available from existing governmental or private sources was recognized by Congress in the late 1950's and early 1960's. The census of transportation (consisting of several surveys) was taken first for 1963 and again for 1967.

Since 1967, all of the above censuses have been taken quinquennially as part of the Census Bureau's economic census program. (For the 1977 censuses, the coverage of the service industries was broadened from "selected services" to "all services, except religious organizations and private households." A total of 41 additional four-digit standard industrial classifications¹ (SIC's) in 7 SIC major groups was added to the scope of the census. While most of the industries included for the first time for 1977 were covered again for 1982, some were not, i.e., hospitals; elementary and secondary schools; colleges, universities, and professional schools; junior colleges and technical institutes; labor unions and similar labor organizations; and political organizations.)

The first manufacturing census for an outlying area was conducted in Puerto Rico for the year 1909. Thereafter, with the exception of 1929, a census was taken at 10-year intervals through 1949. The first censuses of retail trade, wholesale trade, and selected service industries in Puerto Rico were conducted for 1939. These censuses also were taken for the years 1949, 1954, 1958, 1963, and 1967. A census of construction industries was introduced first in Puerto Rico for 1967. These censuses of Puerto Rico have been taken since then for the years 1972, 1977, and 1982.

Censuses of manufactures, retail trade, wholesale trade, and selected service industries were conducted in Guam and the

Virgin Islands of the United States for 1958, 1963, 1967, 1972, 1977, and 1982. Censuses of mineral industries were taken in the Virgin Islands of the United States for the years 1958, 1963, and 1967 but not since that time. A census of construction industries was also undertaken in these areas for 1972, 1977, and 1982.

Retail trade, wholesale trade, selected service industries, manufacturing, and construction industries were canvassed for the first time in the Northern Mariana Islands in 1983 (for 1982).

For 1982, the economic censuses and agriculture censuses were conducted concurrently.

USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source for facts about the structure and functioning of the Nation's economy and provide essential information for government, business, industry, and the general public. They provide an important part of the framework for such composite measures as the gross national product, input-output measures, indexes of industrial production, and indexes measuring productivity and price levels. Information from the censuses is used to establish sampling frames and as benchmarks for current surveys of business activity, which are essential for measuring short-term economic conditions.

State and local governments use census data to assess business activities within their jurisdictions. The private sector uses the data to forecast general economic conditions; analyze sales performance; lay out sales territories; allocate funds for advertising; decide on locations for new plants, warehouses, or stores; and measure potential markets in terms of size, geographic areas, kinds of business, and kinds of products made or sold.

Following every census, thousands of businesses and other users purchase reports. Likewise, census facts are disseminated widely by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. All 1982 data are available on microfiche from the U.S. Government Printing Office and most data on computer tape from the Census Bureau. Finally, the more than 50 State Data Centers also are suppliers of economic census statistics.

AUTHORITY AND SCOPE OF THE ECONOMIC CENSUSES

The economic censuses are required by law under title 13 of the United States Code, sections 131, 191, and 224, which directs that they be taken at 5-year intervals for the years ending in 2 and 7. The 1982 Economic Censuses covered manufacturing, mining, construction industries, retail trade, wholesale trade, service industries, and selected transportation activities. Special programs also cover minority-owned and women-owned businesses. The next economic censuses are scheduled to be taken in 1988 for the year 1987.

¹Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.

CENSUS OF MANUFACTURES

General

The 1982 Census of Manufactures is the 31st census of manufactures of the United States. For 1982, it was conducted jointly with the censuses of mineral industries, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses.

This report, from the 1982 Census of Manufactures, is one of a series of 82 industry reports, each of which provides statistics for groups of related industries. Additional separate reports will be issued for each State and on special subjects, such as size of establishments, legal form of organization, and fuels and electric energy consumed.

These separate reports will subsequently be issued as portions of the final census volumes. Volume I, Subject Statistics, will show comparative statistics for industries, States, and standard metropolitan statistical areas. It also will show selected subjects, such as concentration ratios in manufacturing, selected materials consumed, manufacturing activity in government establishments, and water use in manufacturing. Volume II, Industry Statistics, will be a consolidation of reports for the 82 groups of industries showing the same information that is shown in this report. Volume III, Geographic Area Statistics, will contain establishment-based data (number of establishments, employment, payroll, value added by manufacture, and capital expenditures) for each State and its important standard metropolitan statistical areas, counties, and places, by industry groups and important individual industries. Totals for "all manufacturing" will be shown for counties and places with more than 450 manufacturing employees. The introduction to the final volumes will discuss, at greater length, many of the subjects described in this introduction. For example, the volume text will discuss the relationship of value added by manufacture to National income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

Scope of Census and Definition of Manufacturing Industries

The 1982 Census of Manufactures covers all establishments employing one person or more primarily engaged in manufacturing as defined in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 Supplement.¹ This is the system of industrial classification developed over a period of years by experts on classification in government and private industry under the guidance of the Office of Management and Budget. This system of classification is in general use among government agencies as well as organizations outside the government.

The SIC manual defines manufacturing as the mechanical or chemical transformation of inorganic or organic substances into new products. The assembly of component parts of products is also considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials handling equipment.

¹Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-00500176-0.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for the trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

Relationship Between Annual Survey of Manufactures and Census of Manufactures

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is based on a scientifically selected sample of approximately 55,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply detailed information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services.

Establishment Basis of Reporting

The census of manufactures and the annual survey of manufactures are conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1982, as in earlier years, a minimum size limit was set for including establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than \$5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries.

This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

Manufacturing Universe and Census Report Forms

The 1982 Census of Manufactures universe includes approximately 345,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in this publication are described below.

1. Small Single-Unit Companies Not Sent a Report Form

In the 1982 Census of Manufactures, approximately 140,000 small single-establishment companies were excluded from filing reports. Selection of these small

establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of other Federal agencies. The cutoffs were selected so that these administrative records cases would account for no more than 3 percent of the value of shipments for the industry. Generally, all single-establishment companies with less than 5 employees were excused, while all establishments with more than 20 employees were mailed report forms.

Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" (n.s.k.) categories.

The industry classification codes included in the administrative records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded to the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes these administrative record cases were given only a two- or three-digit SIC group. For the 1982 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as "not elsewhere classified" (n.e.c.) within the given two- or three-digit industry groups.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. Establishments Sent a Report Form

The 205,000 establishments covered in the mail canvass were divided into three groups:

a. ASM sample establishments—This group consisted of approximately 55,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see appendix, Annual Survey of Manufactures).

In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll,

and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. Results of the ASM inquiries are included in tables 3c and 3d of this report.

The census part of the report form is one of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of this many forms to canvass the approximately 450 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries, as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space was also provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant materials not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. Large and medium establishments (non-ASM)—

Approximately 100,000 establishments were included in this group. A variable cutoff, based on administrative records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive one of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. Small single-unit establishments (non-ASM)—

This group consisted of approximately 50,000 establishments. For those industries where application of the variable cutoff for administrative records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or "short" form was used. These establishments received one of the approximately 80 versions of the short form, which requested summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same

data were collected on the short as well as the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the values of the n.s.k. categories.

Auxiliaries

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 10,000 separately operated auxiliaries are included in the paperbound geographic area series, the bound volumes of the census of manufactures, and in a report issued as part of the 1982 Enterprise Statistics survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two or more establishments. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include (1) program planning, including sales research and coordination of purchasing, production, and distribution; (2) company purchasing, including general contracts and purchasing methods; (3) company financial policy and accounting, tax accounting, company sales and profit reports, and personnel accounting; (4) general engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations; (5) direction of company personnel matters; and (6) legal and patent matters.

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

Industry Classification of Establishments

Each of the establishments covered in the census was classified in one of approximately 450 manufacturing industries in accordance with the industry definitions in the SIC system. Under this system of classification, an industry is generally defined as a group of establishments producing a single product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of plants must be significant in terms of its number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively became narrower with successive additions of numerical digits. There are 20 major groups (two-digit SIC), 143 industry groups (three-digit SIC), and approximately 450

industries (four-digit SIC). The product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 1,500 classes of products, identified by a five-digit code, and about 11,000 products, identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in making those products. For example, establishments engaged in blast furnace operations, refining of nonferrous metals from ore, or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be "frozen" in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or the change has occurred for two successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see appendix, Annual Survey of Manufactures). However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The result of these rules covering the switching of plants from one industry classification to another is that, at the aggregate level, some industries comprise different mixes of establishments between survey years, and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is true particularly for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in tables 6a through 6c represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the

composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios, which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that put only the finishing touches on an already highly fabricated item. For example, the refrigeration industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfer of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

Value of Shipments for the Industry Compared With Value of Product Shipments

This industry report shows value of shipments data for industries and products. In tables 1a through 5a, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Product shipments shown in table 6a represent the total value of shipments of products classified as primary to an industry that were shipped by all manufacturing establishments regardless of their industry classification.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this item may be given even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line has been suppressed. However, the suppressed data are included in higher level totals. Additional disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

MICROFICHE AND COMPUTER TAPES

All the data in this report are available on microfiche. Selected data are also available on computer tape.

In addition to selected published data being on computer tape, one major data series, the location of manufacturing plants, will be available only on computer tape. This series presents the number of establishments by employment size class by four-digit SIC industry codes for States, counties, and places of 2,500 inhabitants or more. These data are available for both State and county by industry, and State and place by industry.

Microfiche reports are sold by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Computer tapes are sold by the Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1982 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, D.C. 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

- Represents zero.
- (D) Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
- (NA) Not available.
- (NC) Not comparable.
- (S) Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
- (X) Not applicable.
- (Z) Less than half the unit shown.
- n.e.c. Not elsewhere classified.
- n.s.k. Not specified by kind.
- pt. Part.
- r Revised.
- SIC Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

Users' Guide for Locating Statistics

[For explanation of terms, see appendixes]

	Item	Four-digit industry statistics		
		Historical	Operating ratios	By geographic area
1	Number of companies	1a		
2	Number of manufacturing establishments	1a		2
	Employment and payroll:			
3	Number of employees	1a	1b	2
4	Payroll	1a	1b	2
5	Supplemental labor costs			
6	Production workers	1a	1b	2
7	Production-worker hours	1a	1b	2
8	Production-worker wages	1a	1b	2
	Shipments, cost of materials, and value added:			
9	Value of shipments (four-digit)	1a	1b	2
10	Product class shipments (five-digit)			
11	Product shipments (seven-digit)			
12	Value added by manufacture	1a	1b	2
13	Cost of materials	1a	1b	2
14	Fuels and electric energy			
15	Materials consumed by kind			
	Inventories:			
16	Total, end of year	1a		
17	By method of valuation			
18	By stage of fabrication			
	Capital expenditures, assets, rental payments, and purchased services:			
19	New capital expenditures	1a		2
20	Used plant and equipment expenditures			
21	Gross assets			
22	Depreciation			
23	Retirements of buildings and machinery			
24	Rental payments			
25	Purchased services			
	Ratios:			
26	Specialization	1a		
27	Coverage	1a		

*Number of companies with shipments of over \$100 thousand.

**Detailed information shown.

in This Report by Table Number

Four-digit industry statistics—Con.				Five-digit product class and seven-digit product statistics				
Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class	
3a					* 6a			1
** 3a	4	5a						2
3a	4	5a						3
3a	4	5a						4
** 3d								5
** 3a	4	5a						6
** 3a	4	5a						7
3a	4	5a						8
3a	4	5a		5b, 5c				9
				5b, 5c	6a	6b	6c	10
					6a			11
3a	4	5a						12
** 3a	4	5a						13
3a, 3d			7					14
								15
3b, 3c	4							16
3b, 3c								17
3b								18
** 3a, ** 3d	4	5a						19
** 3a, ** 3d								20
** 3d								21
** 3d								22
** 3d								23
** 3d								24
** 3d								25
3a				5b				26
3a				5b				27

Ir	1	IN	5
U	1		5
D	2		5
	3		6
	3		6
	3		6
	4		6
	5		6
PI	5		6
	5		6
	5		6
	6		6
	6		6
	6		6
M	7		8
	8		8
	9		9
	—		—
AI			
A.			
B.			
—			
PU			
MA			

Blast Furnaces, Steel Works, and Rolling and Finishing Mills

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DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

BLAST FURNACES, STEEL WORKS, AND ROLLING AND FINISHING MILLS

This report shows 1982 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC Code and Title

3312	Blast Furnaces and Steel Mills
3313	Electrometallurgical Products
3315	Steel Wire and Related Products
3316	Cold Finishing of Steel Shapes
3317	Steel Pipe and Tubes

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account in comparing industry statistics (tables 1a-5a) with product statistics (table 6a-1) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Small single-unit companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other government agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions contained in the 1972 Standard Industrial Classification (SIC) Manual and its 1977 supplement.¹

INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS

This industry comprises establishments primarily engaged in the manufacture of hot metal, pig iron, silvery pig iron, and ferroalloys from iron ore and iron and steel scrap; converting pig iron, scrap iron, and scrap steel into steel; and in hot rolling iron and steel into basic shapes, such as plates, sheets, strips, rods, bars, and tubing. Merchant blast furnaces and byproduct or

beehive coke ovens are also included in this industry. Establishments primarily engaged in the manufacture of ferro and nonferrous additive alloys by electrometallurgical processes are classified in industry 3313.

In the 1982 Census of Manufactures, Industry 3312, Blast Furnaces and Steel Mills, recorded employment of 295.8 thousand. The total value of shipments for establishments classified in this industry was \$36,824 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 33 percent below the 441.9 thousand reported in 1977. The leading States in employment in 1982 were Pennsylvania, Indiana, Ohio, and Illinois, accounting for approximately 64 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 66 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 24 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3312 shipped \$35,075 million of products primary to the industry, \$878 million of secondary products, and had \$871 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 98 percent (specialization ratio).

Establishments in this industry also accounted for 79 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). The products primary to industry 3312, no matter in what industry they were produced, appear in table 6a-1 and aggregate to \$44,123 million in current prices.

The total cost of materials and services used by establishments classified in the blast furnaces and steel mills industry amounted to \$23,569 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of total value of shipments.

¹Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 041-001-00066-6. 1977 Supplement. Stock No. 003-005-00176-0.

INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS

This industry comprises establishments primarily engaged in the manufacture of ferro and nonferrous additive alloys by electrometallurgical or metallothermic processes, including high percentage ferroalloys and high percentage nonferrous additive alloys.

In the 1982 Census of Manufactures, Industry 3313, Electrometallurgical Products, recorded employment of 5.3 thousand. The total value of shipments for establishments classified in this industry was \$707 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 40 percent below the 8.9 thousand reported in 1977. The leading States in employment in 1982 were Ohio, West Virginia, New Jersey, and Tennessee, accounting for approximately 75 percent of the industry's 1982 employment. Data for West Virginia, New Jersey, and Tennessee have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when Ohio, West Virginia, Oregon, and Tennessee accounted for approximately 70 percent of the industry's employment.

Compared with 1981, employment decreased 34 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3313 shipped \$653 million of products primary to the industry, \$17 million of secondary products, and had \$37 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 97 percent (specialization ratio).

Establishments in this industry also accounted for 87 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 90 percent. The products primary to industry 3313, no matter in what industry they were produced, appear in table 6a-1 and aggregate to \$750 million in current prices.

The total cost of materials and services used by establishments classified in the electrometallurgical products industry amounted to \$494 million in current prices. Data on specific materials consumed appear in table 7.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 6 percent of total value of shipments.

INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS

This industry comprises establishments primarily engaged in the drawing of wire from purchased iron or steel rods, bars, or wire, and which may be engaged in the further manufacture of products made from wire. Establishments primarily engaged in the manufacture of steel nails and spikes from purchased materials are also included in this industry. Rolling mills engaged in the production of ferrous wire from wire rods or hot rolled bars produced in the same establishment are classified in industry 3312. Establishments primarily engaged in drawing nonferrous wire are classified in industry group 335. Establishments primarily engaged in the manufacture of fabricated wire products from purchased wire are classified in industry 3496.

In the 1982 Census of Manufactures, Industry 3315, Steel Wire and Related Products, recorded employment of 22.0 thousand. The total value of shipments for establishments classified in this industry was \$2,415 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 31 percent below the 31.7 thousand reported in 1977. The leading States in employment in 1982 were Pennsylvania, Ohio, California, and Illinois, accounting for approximately 40 percent of the industry's 1982 employment. Data for Pennsylvania and Illinois have been withheld to avoid disclosing data for individual companies. This represents a shift from 1977 when Pennsylvania, Ohio, Illinois, and Massachusetts accounted for approximately 40 percent of the industry's employment.

Compared with 1981, employment increased 32 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3315 shipped \$2,279 million of products primary to the industry, \$62 million of secondary products, and had \$74 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 97 percent (specialization ratio). In 1977, this specialization ratio was 95 percent.

Establishments in this industry also accounted for 44 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 44 percent. The products primary to industry 3315, no matter in what industry they were produced, appear in table 6a-1 and aggregate to \$5,190 million in current prices.

The total cost of materials and services used by establishments classified in the steel wire and related products industry amounted to \$1,434 million in current prices. Data on specific materials consumed appear in table 7.

INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 7 percent of total value of shipments.

This industry comprises establishments primarily engaged in the cold rolling of steel sheets and strip from purchased hot rolled sheets, the cold drawing of steel bars and steel shapes from purchased hot rolled steel bars, and the producing of other cold finished steel. Establishments primarily engaged in the production of steel, including hot rolled steel sheets, and the further cold rolling of such sheets are classified in industry 3312.

In the 1982 Census of Manufactures, Industry 3316, Cold Finishing of Steel Shapes, recorded employment of 15.4 thousand. The total value of shipments for establishments classified in this industry was \$3,005 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 21 percent below the 19.4 thousand reported in 1977. The leading States in employment in 1982 were Pennsylvania, Ohio, Michigan, and Connecticut, accounting for approximately 65 percent of the industry's 1982 employment. These same States were the leaders in 1977, when they accounted for approximately 69 percent of the industry's employment, although there has been some shift in the relative importance of individual States.

Compared with 1981, employment decreased 16 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3316 shipped \$2,712 million of products primary to the industry, \$247 million of secondary products, and had \$47 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 92 percent (specialization ratio). In 1977, this specialization ratio was 95 percent.

Establishments in this industry also accounted for 32 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 25 percent. The products primary to industry 3316, no matter in what industry they were produced, appear in table 6a-1 and aggregate to \$8,325 million in current prices.

The total cost of materials and services used by establishments classified in the cold finishing of steel shapes industry amounted to \$2,348 million in current prices.

Establishments of single-unit companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the

time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 6 percent of total value of shipments.

INDUSTRY 3317, STEEL PIPE AND TUBES

This industry comprises establishments primarily engaged in the production of welded or seamless steel pipe and tubes and heavy riveted steel pipe from purchased materials. Establishments primarily engaged in the production of steel, including steel skelp or steel blanks, tube rounds, or pierced billets, are classified in industry 3312. Establishments primarily engaged in the fabrication of pipe and tube from purchased pipe and tube are classified in industry 3498.

In the 1982 Census of Manufactures, Industry 3317, Steel Pipe and Tubes, recorded employment of 27.0 thousand. The total value of shipments for establishments classified in this industry was \$3,762 million.

The value of shipments figure shown above is in current (1982) prices. All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

The employment figure shown above was 3 percent below the 27.8 thousand reported in 1977. The leading States in employment in 1982 were Ohio, Pennsylvania, California, and Texas, accounting for approximately 52 percent of the industry's 1982 employment. This represents a shift from 1977 when Ohio, Pennsylvania, California, and Michigan accounted for approximately 54 percent of the industry's employment.

Compared with 1981, employment decreased 6 percent. The 1981 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. In current prices, industry 3317 shipped \$3,420 million of products primary to the industry, \$220 million of secondary products, and had \$122 million of miscellaneous receipts. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 94 percent (specialization ratio). In 1977, this specialization ratio was 95 percent.

Establishments in this industry also accounted for 47 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1977, the coverage ratio was 44 percent. The products primary to industry 3317, no matter in what industry they were produced, appear in table 6a-1 and aggregate to \$7,219 million in current prices.

The total cost of materials and services used by establishments classified in the steel pipe and tubes industry amounted to \$2,452 million in current prices.

Establishments of single-unit companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of total value of shipments.

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year ¹	All establishments ³			All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories ⁴ (million dollars)	Ratios	
	Companies ² (no.)	Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization (per cent)	Coverage (per cent)
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS															
1982 Census	219	301	225	295.8	8 677.9	215.2	375.7	6 181.6	11 763.3	23 568.7	36 824.4	2 170.2	10 043.6	98	79
1981 ASM	(NA)	(NA)	(NA)	390.3	11 461.8	301.7	572.4	8 621.5	20 100.2	37 788.5	57 472.9	2 808.6	10 983.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	402.9	10 493.4	312.6	577.5	7 898.2	18 632.2	31 863.3	50 303.9	2 632.5	10 381.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	451.2	10 989.5	361.4	700.7	8 530.9	21 039.0	35 143.9	55 695.8	2 320.3	10 178.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	443.5	9 842.6	353.7	699.2	7 605.6	19 085.7	30 603.2	49 055.4	2 178.0	9 081.0	(NA)	(NA)
1977 Census	395	504	250	441.9	8 725.7	350.2	668.7	6 653.0	15 331.9	26 715.0	41 998.2	2 143.0	8 471.6	97	(D)
1976 ASM	(NA)	(NA)	(NA)	451.9	8 041.7	358.0	680.9	6 100.7	14 755.5	25 665.9	39 684.1	2 142.3	8 850.1	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	451.3	7 076.4	354.8	657.7	5 298.5	13 356.2	23 162.3	35 659.8	2 068.0	7 428.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	518.0	7 513.2	412.3	811.5	5 848.8	17 425.8	24 341.6	41 671.7	1 643.4	5 632.7	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	502.1	6 480.9	409.9	822.8	5 065.2	12 769.4	17 382.5	30 365.5	1 110.5	4 502.6	(NA)	(NA)
1972 Census	241	364	251	469.1	5 537.8	379.3	739.1	4 254.3	10 304.7	14 022.6	23 946.7	961.2	4 571.6	95	(D)
1971 ASM	(NA)	(NA)	(NA)	482.2	4 968.9	385.0	737.9	3 743.8	9 563.1	12 263.7	21 971.3	1 005.4	4 240.9	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	526.5	5 060.3	424.7	822.5	3 854.6	9 350.5	12 381.3	21 501.6	1 329.9	4 337.3	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	537.7	5 092.9	436.4	872.5	3 925.5	9 853.2	12 686.7	22 299.0	1 574.5	3 863.7	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	533.1	4 719.7	432.9	856.7	3 628.9	9 275.8	11 679.5	21 161.1	1 794.7	3 663.2	(NA)	(NA)
1967 Census	200	329	259	533.1	4 385.3	434.0	845.4	3 368.4	8 910.1	10 997.9	19 620.6	1 661.0	3 936.0	94	(D)
INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS															
1982 Census	31	41	27	5.3	123.5	3.9	7.0	85.5	180.3	494.2	707.5	23.8	371.0	97	87
1981 ASM	(NA)	(NA)	(NA)	8.0	168.4	6.3	13.0	124.4	375.9	856.2	1 161.9	119.0	411.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	8.5	169.9	6.7	13.4	128.4	412.0	854.7	1 249.3	34.2	311.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.3	172.9	7.6	15.2	135.5	428.8	916.3	1 356.6	24.6	345.4	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	8.5	141.8	6.8	13.5	108.4	248.3	767.1	1 078.0	52.0	334.1	(NA)	(NA)
1977 Census	28	42	31	8.9	139.2	7.0	14.3	103.9	274.6	687.0	930.6	53.2	403.8	(D)	90
1976 ASM	(NA)	(NA)	(NA)	8.3	118.5	6.6	12.8	88.2	289.9	593.8	854.6	77.7	358.4	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	8.9	111.9	7.2	14.0	84.4	381.0	545.6	833.1	66.2	331.6	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	9.2	109.3	7.6	15.0	85.4	426.4	546.7	958.4	61.1	187.7	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	9.3	100.3	7.8	15.3	77.3	210.3	422.9	670.6	42.0	131.5	(NA)	(NA)
1972 Census	27	40	31	9.5	94.1	7.8	15.1	71.7	217.2	335.4	550.1	26.3	173.0	(D)	87
1971 ASM	(NA)	(NA)	(NA)	10.1	93.7	8.3	16.3	70.9	243.8	340.7	554.7	34.4	178.3	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	10.4	92.6	8.6	17.6	72.2	199.0	331.3	519.3	28.0	140.7	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	10.5	87.8	8.7	18.0	68.3	231.6	355.9	582.9	24.9	125.5	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	10.7	84.0	8.8	18.2	63.5	197.5	295.7	486.5	32.3	118.3	(NA)	(NA)
1967 Census	21	34	31	10.4	79.0	8.4	17.2	58.6	193.2	289.9	467.9	29.3	114.0	(D)	82
INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS															
1982 Census	251	311	185	22.0	442.9	16.3	31.0	296.7	938.3	1 434.3	2 415.4	61.1	497.0	97	44
1981 ASM	(NA)	(NA)	(NA)	32.2	614.0	24.5	48.5	419.1	1 268.5	1 857.6	3 066.5	83.7	568.5	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	32.5	563.4	24.3	48.7	381.6	1 175.2	1 753.6	2 927.0	83.8	507.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	33.8	556.3	25.7	52.3	384.4	1 217.3	1 722.7	2 923.9	89.5	506.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	33.0	497.0	25.6	51.4	349.1	1 067.4	1 505.8	2 542.4	80.8	494.8	(NA)	(NA)
1977 Census	262	335	223	31.7	436.6	24.3	49.0	304.9	924.4	1 341.2	2 258.6	79.4	422.8	95	47
1976 ASM	(NA)	(NA)	(NA)	32.9	421.6	24.2	49.2	284.0	886.2	1 150.2	2 012.5	53.4	416.6	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	30.0	357.0	22.8	45.5	240.8	731.7	1 062.8	1 800.5	56.8	377.7	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	33.8	385.1	27.2	54.0	266.0	923.5	1 148.9	1 995.0	48.7	436.5	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	33.5	338.8	26.8	54.7	244.4	722.0	833.5	1 556.4	43.6	291.6	(NA)	(NA)
1972 Census	235	289	199	30.6	287.9	24.1	49.4	202.1	583.5	657.8	1 227.7	26.6	263.9	94	42
1971 ASM	(NA)	(NA)	(NA)	26.2	241.4	20.6	42.8	169.8	471.4	584.7	1 058.3	30.8	226.2	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	28.2	236.5	22.3	45.8	170.5	443.7	557.5	985.3	34.8	214.0	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	28.9	229.9	23.2	52.1	160.8	501.3	542.8	1 030.2	34.5	198.6	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	27.9	213.9	22.2	49.6	148.2	458.4	500.6	953.7	46.6	183.6	(NA)	(NA)
1967 Census	200	240	171	27.3	194.8	21.7	44.1	138.0	385.6	467.5	845.2	56.9	162.2	90	37
INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES															
1982 Census	145	192	106	15.4	367.9	10.9	19.7	245.6	623.3	2 348.2	3 005.1	45.2	682.8	92	32
1981 ASM	(NA)	(NA)	(NA)	18.3	444.8	13.4	25.7	309.6	840.0	2 605.7	3 403.1	74.4	524.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	18.4	407.2	13.4	25.6	279.9	759.2	2 306.5	3 077.4	71.6	463.2	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	20.3	421.2	15.2	31.1	300.8	1 097.1	2 552.9	3 610.5	53.4	512.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	20.5	380.2	15.6	31.2	274.4	999.2	2 195.1	3 180.4	58.4	478.9	(NA)	(NA)
1977 Census	118	155	94	19.4	334.6	14.6	28.7	238.8	799.6	1 936.8	2 713.2	49.6	436.6	95	25
1976 ASM	(NA)	(NA)	(NA)	17.3	265.1	12.9	25.1	184.1	627.0	1 649.8	2 248.5	42.2	378.4	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	16.1	219.3	11.7	21.9	146.7	410.6	1 280.7	1 703.5	48.9	322.5	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	22.4	292.8	17.1	34.1	210.5	291.8	1 750.0	2 650.3	61.5	374.2	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	21.1	252.7	16.5	34.0	185.8	597.0	1 420.9	2 028.2	30.1	266.9	(NA)	(NA)
1972 Census	86	125	93	20.1	223.3	15.6	31.8	162.3	504.6	1 144.2	1 635.7	20.6	289.8	91	29
1971 ASM	(NA)	(NA)	(NA)	16.1	159.0	12.0	23.4	108.7	273.8	816.7	1 110.1	22.7	226.6	(NA)	(NA)
1970 ASM	(NA)	(NA)	(NA)	18.4	166.9	13.7	26.6	112.8	374.4	822.9	1 136.3	40.1	276.2	(NA)	(NA)
1969 ASM	(NA)	(NA)	(NA)	19.8	185.8	15.0	31.8	129.4	501.3	928.0	1 275.3	33.4	219.4	(NA)	(NA)
1968 ASM	(NA)	(NA)	(NA)	19.6	166.2										

Table 1a. Historical Statistics for the Industry: 1982 and Earlier Years—Con.

[Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year ¹	Com- panies ² (no.)	All establishments ³		All employees		Production workers			Value added by manufac- ture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expend- itures (million dollars)	End-of- year inven- tories ⁴ (million dollars)	Ratios	
		Total (no.)	With 20 employ- ees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Spe- cial- ization (per- cent)	Cover- age (per- cent)
	INDUSTRY 3317, STEEL PIPE AND TUBES—Con.														
1972 Census-----	115	152	122	23.6	245.5	18.8	39.0	181.8	506.1	807.9	1 292.1	24.1	235.1	93	42
1971 ASM-----	(NA)	(NA)	(NA)	21.5	204.9	16.9	34.1	145.5	426.3	671.9	1 095.9	17.6	218.5	(NA)	(NA)
1970 ASM-----	(NA)	(NA)	(NA)	23.4	206.6	18.3	36.8	148.5	420.4	633.1	1 048.5	32.8	193.7	(NA)	(NA)
1969 ASM-----	(NA)	(NA)	(NA)	27.4	236.4	21.9	45.3	174.3	428.1	807.5	1 226.0	36.4	210.7	(NA)	(NA)
1968 ASM-----	(NA)	(NA)	(NA)	26.5	216.1	21.4	44.0	160.5	419.1	788.6	1 193.9	43.4	214.6	(NA)	(NA)
1967 Census-----	123	151	126	27.0	207.9	21.8	45.1	155.4	412.1	754.4	1 148.6	37.8	205.6	89	38

¹In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1967, see 1967 Census of Manufactures, vol. II, table 1 of the Industry chapter.

²For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

³Includes establishments with payroll at any time during year.

⁴Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Up to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown above and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown below:

Industries	End-of-1981 inventories (million dollars)	End-of-1982 inventories (million dollars)	1982 value added by manufacture (million dollars)
Industry 3312, Blast furnaces and steel mills-----	10 151.9	7 929.5	11 902.9
Industry 3313, Electrometallurgical products-----	402.1	357.1	179.8
Industry 3315, Steel wire and related products-----	517.5	447.1	947.6
Industry 3316, Cold finishing of steel shapes-----	569.1	475.8	625.6
Industry 3317, Steel pipe and tubes-----	925.2	695.9	1 198.0

See Inventories in appendixes for explanation of the difference between end-of-1981 inventory figure shown in table and corresponding figure shown in footnote.

⁵Beginning in 1982, administrative-record cases have been eliminated for industry 3312.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS									
1982 Census-----	29 337	73	1 746	16.45	64	88	39 768	74	31.31
1981 ASM-----	29 367	77	1 897	15.06	66	86	51 499	57	35.12
1980 ASM-----	26 045	78	1 847	13.68	63	84	46 245	56	32.26
1979 ASM-----	24 356	80	1 939	12.17	63	83	46 629	52	30.03
1978 ASM-----	22 193	80	1 977	10.88	62	82	43 034	52	27.30
1977 Census-----	19 746	79	1 909	9.95	64	84	34 695	57	22.93
1976 ASM-----	17 795	79	1 902	8.96	65	85	32 652	54	21.67
1975 ASM-----	15 680	79	1 854	8.06	65	85	29 595	53	20.31
1974 ASM-----	14 504	80	1 968	7.21	58	76	33 641	43	21.47
1973 ASM-----	12 908	82	2 007	6.16	57	79	25 432	51	15.52
1972 Census-----	11 805	81	1 949	5.76	59	82	21 967	54	13.94
1971 ASM-----	10 305	80	1 917	5.07	56	78	19 832	52	12.96
1970 ASM-----	9 611	81	1 937	4.69	58	81	17 760	54	11.37
1969 ASM-----	9 472	81	1 999	4.50	57	80	18 325	52	11.29
1968 ASM-----	8 853	81	1 979	4.24	55	77	17 400	51	10.83
1967 Census-----	8 226	81	1 948	3.98	56	78	16 714	49	10.54
INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS									
1982 Census-----	23 302	74	1 795	12.21	70	87	34 019	68	25.76
1981 ASM-----	21 050	79	2 063	9.57	74	88	46 987	45	28.92
1980 ASM-----	19 988	79	2 000	9.58	68	82	48 471	41	30.75
1979 ASM-----	18 591	82	2 000	8.91	68	80	46 108	40	28.21
1978 ASM-----	16 682	80	1 985	8.03	71	84	29 212	57	18.39
1977 Census-----	15 640	79	2 043	7.27	74	89	30 854	51	19.20
1976 ASM-----	14 277	80	1 939	6.89	69	83	34 928	41	22.65
1975 ASM-----	12 573	81	1 944	6.03	65	79	42 809	29	27.21
1974 ASM-----	11 880	83	1 974	5.69	57	68	46 348	26	28.43
1973 ASM-----	10 785	84	1 962	5.05	63	78	22 613	48	13.75
1972 Census-----	9 905	82	1 936	4.75	61	78	22 863	43	14.38
1971 ASM-----	9 277	82	1 964	4.35	61	78	24 139	38	14.96
1970 ASM-----	8 904	83	2 047	4.10	64	82	19 135	47	11.31
1969 ASM-----	8 362	83	2 069	3.79	61	76	22 057	38	12.87
1968 ASM-----	7 850	82	2 068	3.49	61	78	18 458	43	10.85
1967 Census-----	7 596	81	2 048	3.41	62	79	18 577	41	11.23

See footnotes at end of table.

Table 1b. Selected Operating Ratios for the Industry: 1982 and Earlier Years—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS									
1982 Census-----	20 132	74	1 902	9.57	59	78	42 650	47	30.27
1981 ASM-----	19 068	76	1 980	8.64	61	81	39 394	48	26.15
1980 ASM-----	17 335	75	2 004	7.84	60	79	36 160	48	24.13
1979 ASM-----	16 459	76	2 035	7.35	59	78	36 015	46	23.28
1978 ASM-----	15 061	78	2 008	6.79	59	79	32 345	47	20.77
1977 Census-----	13 773	77	2 016	6.22	59	79	29 161	47	18.87
1976 ASM-----	12 815	74	2 033	5.77	57	78	26 936	48	18.01
1975 ASM-----	11 900	76	1 996	5.29	59	79	24 390	49	16.08
1974 ASM-----	11 393	80	1 985	4.93	58	77	27 322	42	17.10
1973 ASM-----	10 113	80	2 041	4.47	54	75	21 552	47	13.20
1972 Census-----	9 408	79	2 050	4.09	54	77	19 069	49	11.81
1971 ASM-----	9 214	79	2 078	3.97	55	78	17 992	51	11.01
1970 ASM-----	8 387	79	2 054	3.72	57	81	15 734	53	9.69
1969 ASM-----	7 955	80	2 246	3.09	53	75	17 346	46	9.62
1968 ASM-----	7 667	80	2 234	2.99	52	75	16 430	47	9.24
1967 Census-----	7 136	79	2 032	3.13	55	78	14 125	51	8.74
INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES									
1982 Census-----	23 890	71	1 807	12.47	78	90	40 474	59	31.64
1981 ASM-----	24 306	73	1 918	12.05	77	90	45 902	53	32.68
1980 ASM-----	22 130	73	1 910	10.93	75	88	41 261	54	29.66
1979 ASM-----	20 749	75	2 046	9.67	71	82	54 044	38	35.28
1978 ASM-----	18 546	76	2 000	8.79	69	81	48 741	38	32.03
1977 Census-----	17 247	75	1 966	8.32	71	84	41 216	42	27.86
1976 ASM-----	15 324	75	1 946	7.33	73	85	36 243	42	24.98
1975 ASM-----	13 621	73	1 872	6.70	75	88	25 503	53	18.75
1974 ASM-----	13 071	76	1 994	6.17	66	77	13 027	100	8.56
1973 ASM-----	11 976	78	2 061	5.46	70	83	28 294	42	17.56
1972 Census-----	11 109	78	2 038	5.10	70	84	25 104	44	15.87
1971 ASM-----	9 876	75	1 950	4.65	74	88	17 006	58	11.70
1970 ASM-----	9 071	74	1 942	4.24	72	87	20 348	45	14.08
1969 ASM-----	9 384	76	2 120	4.07	73	87	25 318	37	15.76
1968 ASM-----	8 480	76	2 061	3.92	72	87	16 474	51	10.59
1967 Census-----	7 944	76	2 000	3.65	75	90	13 800	58	9.03
INDUSTRY 3317, STEEL PIPE AND TUBES									
1982 Census-----	24 004	75	1 852	12.25	65	82	44 915	53	32.25
1981 ASM-----	23 608	78	1 946	11.42	62	76	68 885	34	45.39
1980 ASM-----	21 040	77	1 920	10.21	65	80	49 395	43	33.33
1979 ASM-----	19 258	79	2 000	8.99	65	80	46 493	41	29.60
1978 ASM-----	17 858	79	2 031	8.31	67	83	39 417	45	24.52
1977 Census-----	16 165	78	2 005	7.57	65	81	35 536	45	22.61
1976 ASM-----	14 705	77	1 946	6.98	62	79	32 963	45	22.01
1975 ASM-----	13 400	78	1 980	6.28	61	77	35 439	38	22.94
1974 ASM-----	12 341	79	2 073	5.61	59	74	35 989	34	21.98
1973 ASM-----	11 415	80	2 106	5.09	62	80	24 659	46	14.59
1972 Census-----	10 403	80	2 074	4.66	63	82	21 445	49	12.98
1971 ASM-----	9 530	79	2 018	4.27	61	80	19 828	48	12.50
1970 ASM-----	8 829	78	2 011	4.04	60	80	17 966	49	11.42
1969 ASM-----	8 628	80	2 068	3.85	66	85	15 624	55	9.45
1968 ASM-----	8 155	81	2 056	3.65	66	84	15 815	52	9.52
1967 Census-----	7 700	81	2 069	3.45	66	84	15 263	50	9.14

Note: For qualifications of data, see footnotes on table 1a.

Table 2. Industry Statistics for Selected States: 1982 and 1977

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982												1977	
	E ¹	All establishments ²		All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees ³ (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number ³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS														
United States	-	301	225	295.8	8 677.9	215.2	375.7	6 181.6	11 763.3	23 568.7	36 824.4	2 170.2	441.9	15 331.9
Alabama	-	15	12	7.6	190.7	5.3	8.4	133.9	264.6	478.3	829.7	23.7	14.9	341.0
Arizona	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
California	-	19	12	7.7	279.6	5.7	10.4	198.9	430.7	691.9	1 163.8	12.3	13.5	342.8
Colorado	-	2	2	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Connecticut	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Delaware	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Florida	-	5	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Georgia	-	4	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Illinois	-	19	17	22.2	613.8	16.3	27.9	423.1	790.7	1 914.2	2 818.8	111.9	38.4	1 457.4
Indiana	-	11	10	53.0	1 545.1	39.2	66.3	1 115.6	2 122.4	4 635.2	6 925.7	405.1	63.3	1 938.9
Iowa	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Kentucky	-	8	5	5.3	155.1	4.1	6.8	111.6	174.6	379.8	586.2	87.0	6.7	234.8
Louisiana	-	5	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	-	3	3	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Michigan	-	15	11	14.8	490.9	11.4	22.0	367.4	639.4	1 464.2	2 123.3	(D)	20.7	971.2
Minnesota	-	3	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.1	34.4
Mississippi	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Missouri	-	4	3	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Nebraska	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New Jersey	-	6	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New York	-	20	15	9.9	291.6	6.5	11.3	193.6	296.5	619.2	1 014.3	41.0	19.4	466.8
North Carolina	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Ohio	-	26	20	40.2	1 167.7	30.8	53.0	871.6	1 870.7	3 591.9	5 692.7	380.4	67.8	3 038.8
Oklahoma	-	5	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Oregon	-	5	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Pennsylvania	-	52	49	73.3	2 159.1	51.4	88.9	1 504.5	2 461.2	5 475.9	8 612.9	494.5	120.7	3 979.9
South Carolina	-	5	4	1.6	41.9	1.3	2.6	34.9	79.9	195.6	272.7	(D)	1.7	46.1
Tennessee	-	7	4	.7	15.0	.6	1.0	11.2	21.2	56.2	72.8	14.6	.8	25.1
Texas	-	14	9	12.6	342.2	8.9	16.5	233.4	840.3	944.2	1 720.9	154.0	13.4	522.2
Utah	-	2	2	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Virginia	-	7	5	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	34.1
Washington	-	5	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	63.9
West Virginia	-	4	4	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Wisconsin	E3	4	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Industry 3312-11, Fully Integrated														
United States	-	30	30	162.4	4 871.6	119.2	204.5	3 512.3	6 418.1	12 161.8	19 261.7	1 193.6	240.8	8 334.8
Alabama	-	2	2	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Colorado	-	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Illinois	-	2	2	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Indiana	-	4	4	49.0	1 433.4	36.5	61.5	1 040.7	2 002.3	3 942.1	6 090.1	392.1	58.7	1 823.1
Kentucky	-	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	-	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Michigan	-	2	2	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
New York	-	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Ohio	-	6	6	23.8	696.4	18.2	31.3	517.6	925.1	2 164.5	3 289.4	262.7	33.7	1 481.7
Pennsylvania	-	7	7	23.7	707.6	17.4	29.6	523.7	877.1	1 614.4	2 642.4	144.4	FF	(D)
Texas	-	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Utah	-	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
West Virginia	-	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Industry 3312-12, Partially Integrated With Blast Furnaces														
United States	-	6	6	19.4	571.7	13.8	24.1	401.0	548.5	1 974.1	2 752.5	117.2	57.3	2 415.6
Illinois	-	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Ohio	-	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	13.0	531.1
Pennsylvania	-	3	3	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Texas	-	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977		
	E ¹	All establishments ²		All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees ³ (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number ³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS—Con.														
Industry 3312-13, Partially Integrated Without Blast Furnaces														
United States	-	91	90	81.3	2 274.8	57.9	101.4	1 572.0	3 463.9	5 393.1	9 283.1	657.6	93.6	3 252.7
Alabama	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Arizona	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	-	3	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Connecticut	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Delaware	-	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Florida	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Georgia	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	-	10	10	8.9	248.3	6.7	12.3	182.0	363.8	482.0	876.8	(D)	12.4	420.8
Indiana	-	4	4	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Kentucky	-	3	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	66.5
Maryland	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Michigan	-	3	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Minnesota	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Missouri	-	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Nebraska	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New York	-	3	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
North Carolina	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	-	5	4	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	16.9	918.5
Oregon	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Pennsylvania	-	22	22	33.0	960.2	22.1	37.8	634.1	1 253.4	2 030.9	3 534.4	238.5	31.5	905.4
South Carolina	-	3	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Tennessee	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Texas	-	6	6	5.0	131.7	3.8	7.4	94.0	210.3	524.0	753.4	60.4	5.1	113.8
Utah	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Virginia	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Washington	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
West Virginia	E9	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Industry 3312-14, Nonintegrated														
United States	-	174	99	32.6	959.9	24.3	45.6	696.3	1 332.9	4 039.8	5 527.1	201.8	50.2	1 328.9
Alabama	-	11	8	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	74.7
California	-	16	9	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.4	-18.9
Illinois	-	6	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.5	153.9
Indiana	-	3	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Iowa	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Louisiana	-	5	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	E2	10	6	2.2	62.6	1.8	4.7	48.5	65.2	253.6	325.9	(D)	1.1	30.2
Mississippi	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
New Jersey	-	6	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New York	-	16	11	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.3	153.2
Ohio	-	14	9	2.9	80.6	2.3	4.1	64.9	129.3	415.8	545.4	7.4	4.2	107.6
Oklahoma	-	5	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Pennsylvania	-	20	17	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	22.3	588.4
Tennessee	-	5	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Texas	E1	6	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	6.5
Virginia	-	5	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Washington	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Wisconsin	E3	4	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS														
United States	-	41	27	5.3	123.5	3.9	7.0	85.5	180.3	494.2	707.5	23.8	8.9	274.6
Iowa	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Kentucky	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
New Jersey	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Ohio	-	8	6	2.3	50.2	1.7	2.6	33.4	79.4	176.5	250.5	6.8	3.4	106.5
Oregon	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Pennsylvania	E9	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
South Carolina	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Tennessee	-	4	3	.3	7.7	.2	.5	5.8	10.0	41.4	61.0	3.8	.7	19.2
West Virginia	-	4	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1982											1977		
	E ¹	All establishments ²		All employees		Production workers			Value added by manufacture ⁴ (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees ³ (1,000)	Value added by manufacture (million dollars)
		Total (no.)	With 20 employees or more (no.)	Number ³ (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS														
United States	-	311	185	22.0	442.9	16.3	31.0	296.7	938.3	1 434.3	2 415.4	61.1	31.7	924.4
Alabama	-	6	4	.4	7.4	.3	.7	6.0	11.6	33.8	47.6	(D)	1.0	13.2
Arkansas	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
California	-	34	16	1.5	30.4	1.2	2.3	22.1	95.3	139.3	226.9	2.0	1.7	55.8
Connecticut	E2	15	8	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Delaware	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Florida	-	13	10	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Georgia	-	6	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Illinois	E1	30	16	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	3.5	125.2
Indiana	-	10	6	.8	17.9	.6	1.2	12.1	30.4	49.7	83.4	1.7	1.4	44.5
Kentucky	-	4	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	11.1
Louisiana	-	3	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Maryland	-	4	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Massachusetts	E2	19	13	1.1	20.5	.8	1.6	14.7	32.8	50.2	86.2	1.2	2.0	54.1
Michigan	-	12	5	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Minnesota	-	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Mississippi	-	4	4	.4	5.4	.3	.6	3.2	6.9	27.3	37.6	(D)	(NA)	(NA)
Missouri	-	7	6	.8	18.2	.6	1.1	11.9	49.6	54.2	111.9	5.6	1.3	42.4
New Jersey	E1	16	8	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.7	16.9
New York	E2	15	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	19.9
North Carolina	E1	5	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Ohio	-	21	13	1.8	36.4	1.4	2.5	25.4	75.9	126.8	207.6	3.4	3.6	109.4
Oklahoma	-	3	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Pennsylvania	-	25	17	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
South Carolina	-	6	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	9.4
Tennessee	-	5	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Texas	E2	22	15	1.1	20.7	.9	1.7	13.6	52.3	105.7	161.4	2.6	1.2	23.9
Virginia	E2	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Wisconsin	-	4	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	28.3
INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES														
United States	-	192	106	15.4	367.9	10.9	19.7	245.6	623.3	2 348.2	3 005.1	45.2	19.4	799.6
California	-	12	6	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	29.7
Connecticut	-	10	8	1.5	37.5	1.2	2.2	24.8	77.7	136.2	218.0	3.8	2.1	105.9
Illinois	-	18	8	.9	18.4	.6	1.1	11.8	25.7	136.9	171.1	3.4	EE	(D)
Indiana	-	7	6	1.0	28.6	.6	1.2	17.0	44.9	162.5	196.4	1.1	EE	(D)
Maryland	-	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Massachusetts	-	4	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.5	19.3
Michigan	E2	22	11	1.7	43.7	1.2	2.1	31.4	69.1	312.1	392.5	2.1	1.8	33.1
Mississippi	E4	6	4	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.2	5.3
New Jersey	-	9	4	.4	7.9	.3	.5	5.6	24.2	27.0	51.5	.7	.5	16.8
New York	-	8	3	.5	9.7	.3	.6	6.8	23.4	69.7	92.6	(D)	.7	28.6
Ohio	-	24	16	3.2	84.7	2.2	3.9	54.4	136.7	558.7	695.3	15.0	4.2	224.4
Pennsylvania	-	23	15	3.6	83.6	2.5	4.5	59.4	136.8	624.0	769.0	11.6	5.2	181.5
Texas	-	10	5	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Wisconsin	-	5	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 3317, STEEL PIPE AND TUBES														
United States	-	223	167	27.0	648.1	20.3	37.6	460.6	1 212.7	2 451.7	3 762.2	124.5	27.8	987.9
Alabama	E9	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	6.4
Arkansas	E1	2	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
California	-	26	13	2.0	56.9	1.6	3.2	44.8	126.3	236.0	369.5	9.7	2.1	84.2
Colorado	-	3	3	.3	5.7	.2	.4	3.8	20.2	31.2	54.7	.3	BB	(D)
Georgia	-	3	3	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	11.4
Illinois	-	19	14	1.7	38.0	1.2	2.0	23.1	60.1	171.0	251.9	6.0	1.8	97.5
Indiana	-	13	9	1.6	39.1	1.2	2.2	27.0	44.8	165.8	247.0	(D)	EE	(D)
Iowa	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Kentucky	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Louisiana	-	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	8.0
Maryland	E1	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Michigan	E1	25	15	1.4	34.8	1.0	2.0	23.8	59.8	102.1	165.8	(D)	2.1	78.0
Minnesota	-	3	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Missouri	-	4	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
New Jersey	-	8	8	1.1	23.1	.7	1.3	13.6	44.6	88.7	135.0	2.0	1.3	38.7
New York	-	7	6	.6	12.9	.5	1.0	9.3	25.1	26.5	51.0	1.5	CC	(D)
Ohio	-	26	24	5.6	151.6	4.4	7.4	114.9	251.6	524.0	789.8	34.3	5.4	184.9
Oklahoma	E1	5	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Pennsylvania	-	27	23	4.6	121.9	3.5	6.9	90.0	296.1	440.0	715.3	22.0	5.4	208.2
Tennessee	E1	6	5	.8	14.1	.5	1.0	9.6	32.3	62.0	94.0	2.6	BB	(D)
Texas	E1	12	9	1.8	35.4	1.3	2.5	20.8	44.0	156.9	205.4	5.3	1.2	35.9
Washington	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
West Virginia	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Wisconsin	-	7	4	1.2	28.3	.9	1.6	20.5	44.0	82.1	140.1	1.6	1.5	47.2

See footnotes at end of table.

Table 2. Industry Statistics for Selected States: 1982 and 1977—Con.

Note: For qualifications of data, see footnotes on table 1a.

¹Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

²Includes establishments with payroll at any time during year.

³Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 150 employees or more, number of establishments is shown and employment size range is indicated by one of the following symbols: AA—150 to 249 employees; BB—250 to 499 employees; CC—500 to 999 employees; EE—1,000 to 2,499 employees; FF—2,500 employees or more.

⁴Beginning in 1982, all respondents were requested to report their inventories at cost or market prior to adjustment to LIFO cost. This is a change from prior years in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, data for inventories and value added by manufacture are not comparable to prior-year data.

Table 3a. Summary Statistics for the Industry: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Blast furnaces and steel mills (SIC 3312)					Electro- metal- lurgical products (SIC 3313)	Steel wire and related products (SIC 3315)	Cold finishing of steel shapes (SIC 3316)	Steel pipe and tubes (SIC 3317)
	Total	Fully integrated (SIC 3312-11)	Partially integrated with blast furnaces (SIC 3312-12)	Partially integrated without blast furnaces (SIC 3312-13)	Nonintegrated (SIC 3312-14)				
Companies ¹ number...	219	(NA)	(NA)	(NA)	(NA)	31	251	145	169
All establishments ² do...	301	30	6	91	174	41	311	192	223
With 1 to 19 employees do...	76	—	—	1	75	14	126	86	56
With 20 to 99 employees do...	45	—	—	8	37	11	118	67	82
With 100 employees or more do...	180	30	6	82	62	16	67	39	85
All employees:									
Average for year 1,000...	295.8	162.4	19.4	81.3	32.6	5.3	22.0	15.4	27.0
Annual payroll ³ mil. dol...	8 677.9	4 871.6	571.7	2 274.8	959.9	123.5	442.9	367.9	648.1
Production workers:									
Average for year 1,000...	215.2	119.2	13.8	57.9	24.3	3.9	16.3	10.9	20.3
March do...	250.4	137.0	19.3	66.6	27.5	4.6	16.7	11.5	24.4
May do...	228.2	125.1	15.6	61.3	26.1	4.3	16.4	11.2	22.0
August do...	206.7	115.5	11.1	56.8	23.4	3.6	16.3	10.8	18.7
November do...	175.4	99.0	9.1	46.9	20.4	2.9	15.7	10.0	16.2
Hours millions...	375.7	204.5	24.1	101.4	45.6	7.0	31.0	19.7	37.6
January to March do...	116.6	63.7	8.9	31.3	12.7	2.2	8.1	5.4	11.7
April to June do...	98.2	53.2	6.3	26.6	12.1	1.9	8.0	5.1	10.0
July to September do...	84.5	46.2	4.7	22.8	10.8	1.6	7.5	4.6	8.3
October to December do...	76.3	41.4	4.3	20.6	10.1	1.2	7.5	4.5	7.6
Wages mil. dol...	6 181.6	3 512.3	401.0	1 572.0	696.3	85.5	296.7	245.6	460.6
Value added by manufacture ⁴ do...	11 763.3	6 418.1	548.5	3 463.9	1 332.9	180.3	938.3	623.3	1 212.7
Cost of materials, etc. ⁵ do...	23 568.7	12 161.8	1 974.1	5 393.1	4 039.8	494.2	1 434.3	2 348.2	2 451.7
Materials, parts, containers, etc., consumed do...	18 238.5	9 513.4	1 353.2	3 880.2	3 491.6	335.2	1 275.1	2 195.7	2 234.0
Resales do...	320.5	46.8	43.2	215.6	15.0	7.2	52.8	10.1	50.8
Fuels consumed ⁶ do...	2 869.3	1 715.0	433.3	508.9	212.2	27.6	41.1	51.2	56.6
Purchased electric energy ⁷ do...	1 720.3	672.0	124.9	648.8	274.6	121.4	49.3	52.5	53.8
Contract work do...	420.2	214.7	19.4	139.6	46.4	2.7	16.0	38.8	56.4
Value of shipments, including resales do...	36 824.4	19 261.7	2 752.5	9 283.1	5 527.1	707.5	2 415.4	3 005.1	3 762.2
Value of resales do...	334.7	52.5	43.2	222.5	16.4	7.3	65.9	12.4	60.0
Manufacturers' inventories (see tables 3b and 3c)									
Capital expenditures for plant and equipment ⁸ do...	2 252.5	1 257.1	117.2	665.2	212.9	24.0	69.1	49.3	128.9
New capital expenditures do...	2 170.2	1 193.6	117.2	657.6	201.8	23.8	61.1	45.2	124.5
New buildings and other structures do...	149.8	79.7	2.8	48.2	19.1	3.3	10.0	5.2	12.6
New machinery and equipment do...	2 020.4	1 113.9	114.3	609.5	182.7	20.5	51.1	40.0	112.0
Used capital expenditures do...	82.4	63.5	.1	7.6	11.2	.2	8.0	4.2	4.4
Primary product specialization ratio ⁹ percent...	98	(NA)	(NA)	(NA)	(NA)	97	97	92	94
Coverage ratio ¹⁰ do...	79	(NA)	(NA)	(NA)	(NA)	87	44	32	47

¹For the census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

²Includes establishments with payroll at any time during year.

³Data on supplemental labor costs are not included in annual payroll, but are shown in table 3d.

⁴Value added by manufacture is computed using inventory data reported on a cost or market basis prior to any adjustment to LIFO cost. See table 3b, footnote 1 for further explanation.

⁵Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3d.

⁶Data on purchased fuels by type were not collected for 1982. See MC82-S-4, Fuels and Electric Energy Consumed, for 1981 data on purchased fuels by type.

⁷Data on quantity of electric energy used for heat and power are included in table 3d.

⁸Data on capital expenditures for new machinery and equipment by type, depreciable assets, retirements, rental payments, and depreciation are included in table 3d.

⁹Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in industry.

¹⁰Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 3b. Value of Inventories for the Industry: End of 1981 and 1982

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Blast furnaces and steel mills (SIC 3312)		Electrometallurgical products (SIC 3313)		Steel wire and related products (SIC 3315)		Cold finishing of steel shapes (SIC 3316)		Steel pipe and tubes (SIC 3317)	
	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982	End of 1981	End of 1982
Total inventories¹	12 555.6	10 043.6	416.8	371.0	580.5	497.0	795.1	682.8	1 139.8	906.4
Detail by method of valuation:										
Subject to LIFO costing ²	5 571.1	4 506.2	168.2	148.9	229.5	190.3	528.1	477.8	628.1	569.7
LIFO reserve	2 910.8	2 555.0	51.5	52.0	67.7	54.1	242.9	224.9	258.1	229.7
LIFO value	2 660.3	1 951.2	116.7	96.9	161.8	136.2	285.3	252.9	370.0	340.0
Not subject to LIFO costing	6 717.3	5 317.6	235.6	211.2	268.7	240.6	202.1	157.2	432.8	273.6
Valuation method not reported ³	247.9	205.4	13.0	10.9	79.0	62.7	64.7	47.7	67.1	61.4
Amount subject to LIFO reported without associated reserve and value ⁴	19.2	14.3	-	-	3.2	3.4	.1	.1	11.8	1.5
Detail by stage of fabrication:										
Finished goods	3 253.0	2 701.7	225.7	194.5	239.9	215.8	194.9	189.2	294.9	334.3
Work in process	4 031.5	3 090.5	27.8	25.9	127.6	108.8	305.6	277.6	361.2	224.0
Materials and supplies	5 271.0	4 251.4	163.3	150.5	213.0	172.3	294.5	216.0	483.7	348.1

¹Effective with the 1982 Economic Censuses, uniform instructions for reporting inventories were introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (LIFO, FIFO, market, to name a few). In 1982, all respondents were requested to report inventories at cost or market. LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve. For further explanation, see inventories in appendixes.

²Only includes data reported by respondents who (a) indicated amount of inventories subject to LIFO cost, and (b) provided sufficient information to determine associated LIFO reserve and value figures.

³Includes data estimated for nonresponse and nonmail administrative records and data reported by respondents who provided total inventory figures without other information.

⁴Includes data reported by respondents who indicated their inventories were subject to LIFO cost, but did not provide associated LIFO reserve and value figures.

Table 3c. Inventories by Specific Method of Valuation for the Industry: End of 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Blast furnaces and steel mills (SIC 3312)		Electrometallurgical products (SIC 3313)		Steel wire and related products (SIC 3315)		Cold finishing of steel shapes (SIC 3316)		Steel pipe and tubes (SIC 3317)	
	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)	Percent of total	Absolute standard error (percent)
Total inventories	100.0	(X)	100.0	(X)	100.0	(X)	100.0	(X)	100.0	(X)
Last-In, First-Out (LIFO) methods	44.9	(X)	40.1	(X)	38.3	(X)	70.0	(X)	62.9	(X)
Non-LIFO methods	52.9	(X)	56.9	(X)	48.4	(X)	23.0	(X)	30.2	(X)
Cost basis:										
First-In, First-Out (FIFO)	2.4	(Z)	.3	(Z)	22.0	1.3	4.6	.8	4.9	.5
Average cost	14.3	.1	20.4	1.7	3.6	.7	4.0	.2	8.2	.3
Specific or actual cost .....	.5	(Z)	5.5	.5	5.7	2.0	4.8	.4	7.6	.3
Standard cost	21.0	.1	16.2	3.4	5.4	.7	9.2	.7	7.7	.4
Other	14.6	(Z)	7.6	.6	11.7	1.1	.3	(Z)	1.6	.4
Market basis:										
Market lower than cost .....	.1	(Z)	6.9	.6	(Z)	(Z)	.1	(Z)	.1	(Z)
Market always used	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Valuation method not reported	2.0	(X)	2.9	(X)	12.6	(X)	7.0	(X)	6.8	(X)
Amount subject to LIFO reported without associated reserve and value .....	.1	(X)	(Z)	(X)	.7	(X)	(Z)	(X)	.2	(X)

Note: The percentages shown for the LIFO and non-LIFO totals and the categories "valuation method not reported" and "amount subject to LIFO reported..." are based on the census universe estimates included in table 3b. The percentages shown for the specific non-LIFO methods of valuation (e.g., FIFO, etc.) are based on a representative sample of establishments included in the annual survey of manufactures (ASM) panel for 1982 (see appendixes for description of ASM). The absolute standard error of each of the ASM estimates is shown above.

Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Blast furnaces and steel mills (SIC 3312)		Electrometallurgical products (SIC 3313)		Steel wire and related products (SIC 3315)		Cold finishing of steel shapes (SIC 3316)		Steel pipe and tubes (SIC 3317)	
	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)
Supplemental labor costs:										
Total	3 389.5	1	44.8	2	125.0	2	122.5	2	208.1	1
Legal costs	806.3	1	12.4	1	46.4	2	35.4	3	60.4	1
Voluntary costs	2 583.2	1	32.4	2	78.6	2	87.1	2	147.7	1
Purchased services:										
Cost of purchased services for the repair of—										
Buildings and other structures	30.8	1	.9	9	3.3	9	1.4	4	11.7	22
Response coverage ratio (percent) ²	74.5	(X)	80.4	(X)	75.2	(X)	60.4	(X)	70.9	(X)
Machinery	569.4	1	4.7	16	29.2	7	11.7	6	55.2	20
Response coverage ratio (percent) ²	80.2	(X)	77.0	(X)	77.3	(X)	65.6	(X)	73.6	(X)
Cost of purchased communication services	47.1	1	1.1	3	4.9	9	4.3	5	70.1	32
Response coverage ratio (percent) ²	86.6	(X)	87.4	(X)	83.5	(X)	69.3	(X)	74.8	(X)

See footnotes at end of table.

Table 3d. Supplemental Industry Statistics Based on Sample Estimates: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Blast furnaces and steel mills (SIC 3312)		Electrometallurgical products (SIC 3313)		Steel wire and related products (SIC 3315)		Cold finishing of steel shapes (SIC 3316)		Steel pipe and tubes (SIC 3317)	
	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)	Amount (million dollars)	Relative standard error of estimate ¹ (percent)
Electric energy used for heat and power:										
Purchased:										
Quantity (million kWh)	35 740.6	1	3 440.9	1	977.8	1	1 070.2	1	939.6	1
Cost	1 720.3	(X)	121.4	(X)	49.3	(X)	52.5	(X)	53.8	(X)
Generated less sold (million kWh)	5 607.9	1	621.6	1	7.1	60	13.2	1	.1	178
Gross book value of depreciable assets:										
Total:										
Beginning of year	39 675.8	1	479.6	3	900.1	3	912.3	2	1 364.5	2
New capital expenditures	2 113.6	1	23.3	8	45.0	10	43.3	5	114.0	6
Used capital expenditures	83.8	3	.1	26	5.7	17	2.9	14	3.6	22
Retirements	1 296.4	2	15.2	2	25.9	17	34.9	5	73.3	5
End of year	40 576.7	1	487.8	3	925.0	3	923.6	2	1 408.8	2
Buildings and other structures:										
Beginning of year	5 788.5	1	63.2	2	222.2	5	178.1	3	279.4	3
New capital expenditures	140.5	1	3.3	4	6.6	16	5.2	3	10.9	13
Used capital expenditures	1.8	5	-	-	.1	50	.3	27	.3	1
Retirements	92.2	2	2.3	1	6.8	25	12.1	2	8.9	15
End of year	5 838.6	1	64.3	3	222.0	5	171.4	3	281.7	3
Machinery and equipment:										
Beginning of year	33 887.3	1	416.4	3	678.0	3	734.2	3	1 085.1	2
New capital expenditures	1 973.1	1	20.0	10	38.4	10	38.1	5	103.2	6
Automobiles, trucks, etc., for highway use	30.7	1	-	-	.7	11	.4	1	1.2	24
Computers and peripheral data processing equipment	66.6	1	(Z)	1	1.0	33	.2	1	1.8	27
All other	1 708.6	1	16.4	12	29.6	11	35.7	5	89.5	6
New machinery and equipment, n.s.k. ³	167.2	(S)	3.5	(S)	7.1	(S)	1.9	(S)	10.7	(S)
Used capital expenditures	82.0	2	.1	26	5.7	17	2.7	13	3.3	24
Retirements	1 204.3	2	12.9	3	19.1	15	22.8	7	64.4	4
End of year	34 738.2	1	423.5	3	702.9	3	752.1	3	1 127.1	2
Rental payments:										
Total	138.8	1	2.2	2	13.0	13	11.1	5	13.3	12
Buildings and other structures	9.3	4	.1	11	6.0	17	3.6	13	4.3	19
Machinery and equipment	129.5	1	2.1	3	7.0	16	7.5	4	9.0	9
Depreciation charges during 1982:										
Total	1 535.4	1	24.5	3	59.9	4	47.0	3	71.8	5
Buildings and other structures	170.9	1	2.2	4	8.8	4	5.4	4	9.3	4
Machinery and equipment	1 364.5	1	22.4	3	51.1	4	41.6	3	62.4	5

Note: Data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used expenditures are also shown in table 3a. Data in table 3a are census universe totals and may differ from annual survey of manufactures (ASM) sample estimates shown in this table. Data in this table represent best estimates of year-to-year change as measured by the continuing ASM sample. However, they are subject to sampling error and, hence, as estimates of level, are not as reliable as universe figures shown in table 3a.

¹For description of relative standard error of estimate, see Qualifications of the Data in appendixes.

²Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to weighted total employment for all sample establishments classified in industry. (See appendixes for explanation of sample weight.)

³Represents total machinery and equipment expenditures for establishments that did not break down their expenditures by specific type.

Table 4. Industry Statistics by Employment Size of Establishment: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E ¹	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS												
Total	-	301	295.8	8 677.9	215.2	375.7	6 181.6	11 763.3	23 568.7	36 824.4	2 170.2	10 043.6
Establishments with an average of—												
1 to 4 employees	E7	44	.1	1.3	.1	.1	1.2	3.4	5.4	9.0	55.0	1.8
5 to 9 employees	E9	15	.1	1.9	.1	.1	1.4	3.4	5.5	9.0	(D)	1.9
10 to 19 employees	E2	18	.3	4.9	.2	.4	3.6	8.7	17.0	30.1	(D)	4.1
20 to 49 employees	E4	24	.8	15.1	.6	1.1	10.5	30.9	60.9	93.7	(D)	12.5
50 to 99 employees	-	21	1.7	42.6	1.2	2.3	29.9	82.4	163.4	216.4	7.1	77.8
100 to 249 employees	-	41	6.7	163.4	5.1	9.8	120.7	299.7	643.0	954.2	44.2	242.0
250 to 499 employees	-	38	13.5	359.1	10.0	18.7	262.1	748.2	1 290.4	2 085.7	138.6	373.5
500 to 999 employees	-	33	22.6	622.9	16.7	29.7	444.1	843.6	2 187.4	3 135.5	171.2	803.2
1,000 to 2,499 employees	-	27	43.7	1 273.8	32.0	57.5	921.3	1 607.8	4 079.1	5 985.4	281.7	1 367.4
2,500 employees or more	-	40	206.4	6 193.0	149.2	256.0	4 386.7	8 135.2	15 116.7	24 305.4	1 472.4	7 159.5
Industry 3312-11, Fully Integrated												
Total	-	30	162.4	4 871.6	119.2	204.5	3 512.3	6 418.1	12 161.8	19 261.7	1 193.6	5 977.3
Establishments with an average of—												
250 to 499 employees	-	2	162.4	4 871.6	119.2	204.5	3 512.3	6 418.1	12 161.8	19 261.7	1 193.6	5 977.3
1,000 to 2,499 employees	-	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	-	24	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Industry 3312-12, Partially Integrated With Blast Furnaces												
Total	-	6	19.4	571.7	13.8	24.1	401.0	548.5	1 974.1	2 752.5	117.2	598.3
Establishments with an average of—												
2,500 employees or more	-	6	19.4	571.7	13.8	24.1	401.0	548.5	1 974.1	2 752.5	117.2	598.3

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1982—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E ¹	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS—Con.												
Industry 3312-13, Partially Integrated Without Blast Furnaces												
Total.....	-	91	81.3	2 274.8	57.9	101.4	1 572.0	3 463.9	5 393.1	9 283.1	657.6	2 165.7
Establishments with an average of—												
10 to 19 employees.....	-	1	10.7	271.5	7.7	14.3	192.3	570.3	1 009.5	1 587.0	130.8	327.6
20 to 49 employees.....	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees.....	-	7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees.....	-	12	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees.....	-	22	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees.....	-	22	15.2	416.0	11.2	20.3	297.4	575.8	1 193.0	1 844.5	131.7	458.2
1,000 to 2,499 employees.....	-	17	26.4	778.2	18.9	34.2	547.7	970.4	1 670.4	2 835.2	134.6	674.4
2,500 employees or more.....	-	9	29.1	809.2	19.9	32.6	534.6	1 347.4	1 520.1	3 016.3	260.6	705.5
Industry 3312-14, Nonintegrated												
Total.....	-	174	32.6	959.9	24.3	45.6	696.3	1 332.9	4 039.8	5 527.1	201.8	1 302.3
Establishments with an average of—												
1 to 4 employees.....	E7	44	.1	1.3	.1	.1	1.2	3.4	5.4	9.0	111.9	1.8
5 to 9 employees.....	E9	15	.1	1.9	.1	.1	1.4	3.4	5.5	9.0	(D)	1.9
10 to 19 employees.....	E3	17	11.4	294.6	8.8	17.0	220.1	561.6	1 125.8	1 712.9	(D)	361.3
20 to 49 employees.....	E4	23	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees.....	-	14	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees.....	-	29	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees.....	-	14	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees.....	-	11	7.5	206.9	5.4	9.3	146.7	267.9	994.4	1 291.0	39.5	345.0
1,000 to 2,499 employees.....	-	6	13.5	455.2	10.0	19.1	327.0	496.6	1 908.8	2 505.4	50.4	592.4
2,500 employees or more.....	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS												
Total.....	-	41	5.3	123.5	3.9	7.0	85.5	180.3	494.2	707.5	23.8	371.0
Establishments with an average of—												
1 to 4 employees.....	E6	6	(Z)	.6	(Z)	(Z)	.4	.6	1.7	2.4	(Z)	.7
5 to 9 employees.....	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10 to 19 employees.....	E8	5	.1	2.6	.1	.1	1.9	11.0	7.8	19.3	.8	3.4
20 to 49 employees.....	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees.....	-	9	.6	17.9	.5	1.1	14.5	48.6	74.6	122.6	2.5	78.7
100 to 249 employees.....	-	12	4.5	102.4	3.2	5.7	68.6	120.0	410.1	563.3	20.5	288.2
250 to 499 employees.....	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees.....	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	4	(Z)	.2	(Z)	(Z)	.1	.3	.8	1.1	(Z)	.4
INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS												
Total.....	-	311	22.0	442.9	16.3	31.0	296.7	938.3	1 434.3	2 415.4	61.1	497.0
Establishments with an average of—												
1 to 4 employees.....	E5	47	.1	1.6	.1	.2	1.2	2.7	4.1	11.6	.2	1.6
5 to 9 employees.....	E5	30	.2	3.3	.1	.3	2.1	6.6	10.9	18.1	.8	3.4
10 to 19 employees.....	E5	49	.7	11.7	.5	1.0	8.0	27.2	46.2	74.4	1.1	14.2
20 to 49 employees.....	E1	66	2.2	37.0	1.7	3.1	24.7	96.7	172.0	273.7	4.2	47.8
50 to 99 employees.....	-	52	3.7	67.4	2.9	5.7	47.8	177.8	336.6	526.2	12.0	85.0
100 to 249 employees.....	-	50	7.3	142.3	5.6	10.7	98.1	289.2	521.5	817.3	20.0	161.4
250 to 499 employees.....	-	10	3.4	77.2	2.4	4.6	51.3	156.6	159.4	318.0	11.5	68.5
500 to 999 employees.....	-	7	4.5	102.4	3.0	5.5	63.4	181.4	183.6	376.2	11.4	115.1
Covered by administrative records ²	E9	70	.5	6.6	.4	.8	4.8	12.8	19.2	32.9	.8	7.1
INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES												
Total.....	-	192	15.4	367.9	10.9	19.7	245.6	623.3	2 348.2	3 005.1	45.2	682.8
Establishments with an average of—												
1 to 4 employees.....	E9	24	.1	.8	(Z)	.1	.6	1.3	3.9	5.3	.1	1.0
5 to 9 employees.....	E6	26	.2	3.0	.1	.2	1.9	4.6	7.8	23.7	.3	4.7
10 to 19 employees.....	E3	36	.5	8.6	.4	.7	5.6	33.6	103.8	141.2	1.4	24.8
20 to 49 employees.....	-	32	1.0	17.9	.7	1.3	11.7	49.1	148.9	205.3	2.5	43.8
50 to 99 employees.....	-	35	2.4	53.4	1.7	3.2	33.8	95.9	380.7	483.2	8.4	98.3
100 to 249 employees.....	-	13	7.5	194.5	5.1	9.3	128.5	345.1	1 255.4	1 600.7	22.6	349.8
250 to 499 employees.....	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees.....	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records ²	E9	45	.4	4.8	.3	.5	3.4	7.8	24.6	33.0	.5	6.9
INDUSTRY 3317, STEEL PIPE AND TUBES												
Total.....	-	223	27.0	648.1	20.3	37.6	460.6	1 212.7	2 451.7	3 762.2	124.5	906.4
Establishments with an average of—												
1 to 4 employees.....	E9	25	.1	.8	(Z)	.1	.6	1.8	3.3	5.1	.1	.9
5 to 9 employees.....	E8	15	.1	1.7	.1	.2	1.1	3.4	7.4	10.9	.5	3.1
10 to 19 employees.....	E7	16	.2	3.9	.2	.3	2.6	16.7	15.7	33.6	.3	4.8
20 to 49 employees.....	E1	47	1.5	29.6	1.1	2.3	20.6	61.6	135.3	196.9	5.8	38.0
50 to 99 employees.....	E1	35	2.5	53.8	1.9	3.5	36.1	136.2	239.7	380.2	12.5	79.9
100 to 249 employees.....	-	55	8.2	177.8	6.2	11.8	119.3	340.8	619.9	977.2	30.6	220.3
250 to 499 employees.....	-	22	7.5	179.4	5.4	9.6	121.2	294.9	702.2	1 047.5	30.0	263.2
500 to 999 employees.....	-	7	6.8	201.2	5.4	9.7	159.0	357.3	728.1	1 110.7	44.8	296.1
1,000 to 2,499 employees.....	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a. Data shown as a (D) are included in underscored figures above.

¹Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown for those States where estimated data based on administrative records data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

²Report forms were not mailed to small single-unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1982 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective size classes shown.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendices.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3312	Blast furnaces and steel mills:										
	Entire industry	301	295.8	8 677.9	215.2	375.7	6 181.6	11 763.3	23 568.7	36 824.4	2 170.2
	Establishments with 75 percent specialization or more ..	277	284.1	8 365.4	206.6	359.2	5 967.2	11 357.7	22 931.2	35 729.1	2 137.5
33121	Coke oven and blast furnace products:										
	Establishments with this product class primary	32	9.7	278.5	7.3	13.4	208.2	281.1	1 069.0	1 354.0	77.8
	Establishments with 75 percent specialization or more in class	31	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33122	Steel ingot and semifinished shapes and forms:										
	Establishments with this product class primary	20	18.3	508.0	13.5	21.8	358.6	739.9	1 632.7	2 462.7	124.5
	Establishments with 75 percent specialization or more in class	12	7.2	218.5	5.7	9.9	159.9	419.2	761.3	1 194.7	66.7
33123	Hot rolled sheet and strip:										
	Establishments with this product class primary	32	132.0	4 027.9	97.5	169.7	2 895.5	5 309.2	11 934.9	17 772.0	849.5
	Establishments with 75 percent specialization or more in class	9	20.3	637.9	14.4	27.5	436.6	884.3	2 436.8	3 353.8	(D)
33124	Hot rolled bars and bar shapes:										
	Establishments with this product class primary	85	78.1	2 198.4	55.8	98.5	1 536.4	2 831.1	5 034.3	8 261.8	641.1
	Establishments with 75 percent specialization or more in class	58	25.9	720.0	18.5	34.7	492.9	1 013.3	2 195.7	3 321.1	237.2
33125	Steel wire, produced in steel mills (also see code 33155):										
	Establishments with this product class primary	4	3.5	89.0	2.6	4.6	66.9	108.6	179.8	289.6	6.7
	Establishments with 75 percent specialization or more in class	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33126	Steel pipe and tubes, produced in steel mills (also see code 33176):										
	Establishments with this product class primary	14	31.2	907.0	22.4	39.3	657.2	1 599.4	2 199.0	4 008.6	298.7
	Establishments with 75 percent specialization or more in class	9	11.9	342.1	7.9	14.8	231.7	879.3	822.1	1 728.1	98.2
33127	Cold rolled steel sheet and strip, produced in steel mills (also see code 33167):										
	Establishments with this product class primary	4	9.9	320.2	7.4	13.2	241.4	459.1	831.0	1 453.2	(D)
	Establishments with 75 percent specialization or more in class	-	-	-	-	-	-	-	-	-	-
33128	Cold finished steel bars and bar shapes, produced in steel mills (also see code 33168):										
	Establishments with this product class primary	6	6.1	171.4	3.7	6.1	100.1	234.0	422.6	701.2	66.5
	Establishments with 75 percent specialization or more in class	-	-	-	-	-	-	-	-	-	-
3312A	Seamless rolled ring ferrous forgings, produced in steel mills (also see code 34627):										
	Establishments with this product class primary	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	-	-	-	-	-	-	-	-	-	-
3312B	Open die or smith ferrous forgings, hammer or press, produced in steel mills (also see code 34628):										
	Establishments with this product class primary	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
3312C	Other steel mill products, except wire products:										
	Establishments with this product class primary	5	.5	11.3	.3	.7	7.3	19.2	27.3	41.8	(D)
	Establishments with 75 percent specialization or more in class	5	.5	11.3	.3	.7	7.3	19.2	27.3	41.8	(D)
3313	Electrometallurgical products:										
	Entire industry	41	5.3	123.5	3.9	7.0	85.5	180.3	494.2	707.5	23.8
	Establishments with 75 percent specialization or more ..	38	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33131	Ferromanganese:										
	Establishments with this product class primary	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33132	Ferrosilicon:										
	Establishments with this product class primary	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
	Establishments with 75 percent specialization or more in class	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
33133	Ferrosilicon:										
	Establishments with this product class primary	8	2.3	49.7	1.8	2.8	36.0	90.6	184.4	280.9	6.3
	Establishments with 75 percent specialization or more in class	4	1.3	22.8	1.1	1.4	17.7	42.5	84.1	129.0	1.6
33134	Other ferroalloy products produced in electric furnaces:										
	Establishments with this product class primary	10	1.1	26.8	.7	1.4	17.5	39.0	135.1	188.9	6.7
	Establishments with 75 percent specialization or more in class	10	1.1	26.8	.7	1.4	17.5	39.0	135.1	188.9	6.7
3315	Steel wire and related products:										
	Entire industry	311	22.0	442.9	16.3	31.0	296.7	938.3	1 434.3	2 415.4	61.1
	Establishments with 75 percent specialization or more ..	295	20.5	409.3	15.4	29.4	279.8	879.8	1 370.1	2 285.3	57.1
33151	Noninsulated ferrous wire rope, cable, and strand, produced in wire drawing plants (also see code 34961):										
	Establishments with this product class primary	27	4.4	97.1	3.3	5.9	65.5	197.9	236.0	448.4	15.9
	Establishments with 75 percent specialization or more in class	23	3.5	78.2	2.7	4.8	54.4	162.2	188.0	365.7	13.5
33152	Steel nails and spikes, produced in wire drawing plants (also see code 34967):										
	Establishments with this product class primary	17	1.4	24.4	1.1	2.1	18.4	39.4	71.5	119.0	3.9
	Establishments with 75 percent specialization or more in class	16	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1982—
Con.

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. Statistics for establishments with specialization ratios of less than 75 percent are included in total lines but are not shown as a separate class. In addition, data may not be shown for various reasons; e.g., to avoid disclosing data for individual companies. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry or product class code	Industry or product class by percent of specialization	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
3315	Steel wire and related products—Con.										
33155	Steel wire, not produced in steel mills (also see code 33125)										
	Establishments with this product class primary	92	8.0	172.3	5.9	11.8	118.5	367.7	662.6	1 030.0	21.1
	Establishments with 75 percent specialization or more in class	72	6.0	128.9	4.4	8.7	88.8	275.9	489.5	763.1	17.0
33156	Fencing and fence gates, produced in wiredrawing plants (also see code 34966):										
	Establishments with this product class primary	16	1.8	35.1	1.3	2.5	22.9	76.5	108.3	186.7	4.8
	Establishments with 75 percent specialization or more in class	12	1.1	19.1	.8	1.6	11.4	41.0	76.3	118.3	(D)
33157	Ferrous wire cloth and other ferrous woven wire products, produced in wiredrawing plants (also see code 34964):										
	Establishments with this product class primary	4	.3	5.8	.2	.5	4.0	12.0	11.4	24.8	.3
	Establishments with 75 percent specialization or more in class	4	.3	5.8	.2	.5	4.0	12.0	11.4	24.8	.3
33159	Other fabricated ferrous wire products, except springs, produced in wiredrawing plants (also see code 34968):										
	Establishments with this product class primary	48	4.8	90.2	3.4	6.2	54.7	209.8	291.9	516.6	13.1
	Establishments with 75 percent specialization or more in class	39	3.3	62.0	2.5	4.5	40.5	146.1	189.3	345.9	7.1
3316	Cold finishing of steel shapes:										
	Entire industry	192	15.4	367.9	10.9	19.7	245.6	623.3	2 348.2	3 005.1	45.2
	Establishments with 75 percent specialization or more ..	176	13.3	317.6	9.3	17.0	214.7	526.4	2 004.0	2 560.5	39.4
33167	Cold rolled steel sheet and strip, not produced in steel mills (also see code 33127):										
	Establishments with this product class primary	54	9.7	239.1	6.8	12.4	162.9	398.8	1 539.9	1 975.9	34.1
	Establishments with 75 percent specialization or more in class	46	8.0	196.2	5.6	10.2	135.9	320.3	1 217.7	1 566.9	29.1
33168	Cold finished steel bars and bar shapes, not produced in steel mills (also see code 33128):										
	Establishments with this product class primary	66	4.9	116.6	3.5	6.1	74.4	198.6	744.4	938.4	9.9
	Establishments with 75 percent specialization or more in class	63	4.4	106.2	3.1	5.5	67.7	183.8	698.0	877.0	9.3
3317	Steel pipe and tubes:										
	Entire industry	223	27.0	648.1	20.3	37.6	460.6	1 212.7	2 451.7	3 762.2	124.5
	Establishments with 75 percent specialization or more ..	209	24.1	575.9	18.0	33.1	402.4	1 054.9	2 213.7	3 359.7	115.6

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry-Product Analysis—Value of Shipments and Primary Product Shipments, Specialization and Coverage Ratios for the Industry: 1982 and Earlier Census Years

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Industry and product group code	Industry and census year	Value of shipments					Value of primary product shipments			
		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscellaneous receipts (million dollars)	Primary product specialization ratio Col. B ÷ Col. B + C (percent)	Total made in all industries (million dollars)	Made in this industry (million dollars)	Made in other industries (million dollars)	Coverage ratio Col. B ÷ Col. F (percent)
		A	B	C	D	E	F	G	H	I
3312	Blast furnaces and steel mills									
	1982--	36 824.4	35 075.4	877.7	871.3	98	44 122.8	35 075.4	9 047.4	79
	1977--	41 998.2	39 288.2	1 365.2	1 344.8	'97	46 065.7	39 288.7	6 777.0	(D)
	1972--	23 946.7	21 870.5	1 272.8	803.4	'95	25 806.7	21 870.5	3 936.2	(D)
3313	Electrometallurgical products									
	1982--	707.5	653.1	17.5	37.0	97	749.5	653.1	96.4	87
	1977--	930.6	850.2	80.5	—	'95-100	944.1	850.2	93.9	90
	1972--	550.1	517.7	32.4	—	'90-100	594.4	517.7	76.7	87
3315	Steel wire and related products									
	1982--	2 415.4	2 279.3	62.0	74.2	97	5 190.5	2 279.3	2 911.2	44
	1977--	2 258.6	2 036.7	99.1	122.9	95	4 369.2	2 036.7	2 332.5	47
	1972--	1 227.2	1 095.3	52.9	79.5	94	2 599.8	1 095.3	1 504.5	42
3316	Cold finishing of steel shapes									
	1982--	3 005.1	2 711.6	246.5	47.0	92	8 324.5	2 711.6	5 612.9	32
	1977--	2 713.2	2 523.0	143.2	47.1	95	9 938.6	2 523.0	7 415.6	25
	1972--	1 635.7	1 440.8	147.5	47.4	91	4 889.9	1 440.8	3 449.1	29
3317	Steel pipe and tubes									
	1982--	3 762.2	3 419.9	220.3	122.0	94	7 218.6	3 419.9	3 798.7	47
	1977--	2 681.4	2 454.5	129.5	97.4	95	5 620.7	2 454.5	3 166.2	44
	1972--	1 292.1	1 161.7	86.1	44.3	93	2 765.5	1 161.7	1 603.8	42

¹Minimum percentage; exact percentage withheld to avoid disclosing data for individual companies.

Table 5c-1. Industry-Product Analysis—Shipments by Product Class and Industry: 1982

[Million dollars. Table shows where products of an industry (referred to as primary and listed in table 6a) are made and what products are made by establishments classified in an industry. Read down an industry column to find what products are produced in an industry. Only those product groups that have at least \$2 million in shipments from establishments classified in one of industries included in this chapter are shown. Read across to determine where products of industries in this chapter are produced. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column. Specified "Other industries" are listed in table 5c-2 if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see explanatory text. For explanation of terms, see appendixes]

1982 product code	Product group, product class, and miscellaneous receipts	All industries	Blast furnaces and steel mills (SIC 3312)	Electro- metallurgical products (SIC 3313)	Steel wire and related products (SIC 3315)	Cold finishing of steel shapes (SIC 3316)	Steel pipe and tubes (SIC 3317)	Other industries
	Total	(X)	36 824.4	707.5	2 415.4	3 005.1	3 762.2	(X)
	Primary products	(X)	35 075.4	653.1	2 279.3	2 711.6	3 419.9	(X)
	Secondary products	(X)	877.7	17.5	62.0	246.5	220.3	(X)
	Miscellaneous receipts	(X)	871.3	37.0	74.2	47.0	122.0	(X)
3312-	Blast furnaces and steel mills	35 456.8	35 075.4	(D)	11.1	178.3	(D)	148.9
33121	Coke oven and blast furnace products	1 873.1	1 826.5	(D)	-	-	(D)	18.6
33122	Steel ingot and semifinished shapes and forms	3 082.0	3 050.7	-	(D)	(D)	(D)	28.4
33123	Hot rolled sheet and strip	11 913.5	11 765.4	-	-	107.1	7.3	33.7
33124	Hot rolled bars and bar shapes	8 199.2	8 111.0	-	(D)	(D)	(D)	(D)
33125	Steel wire, produced in steel mills (also see code 33155) ..	392.4	392.4	-	-	-	-	(Z)
33126	Steel pipe and tubes, produced in steel mills (also see code 33176)	3 561.5	3 561.5	-	-	-	-	-
33127	Cold rolled steel sheet and strip, produced in steel mills (also see code 33167)	5 162.6	5 162.6	-	-	-	-	-
33128	Cold finished steel bars and bar shapes, produced in steel mills (also see code 33168)	358.5	(D)	-	-	-	-	(D)
3312A	Seamless rolled ring ferrous forgings, produced in steel mills (also see code 34627)	(D)	(D)	-	-	-	-	-
3312B	Open die or smith ferrous forgings, hammer or press, produced in steel mills (also see code 34628)	(D)	(D)	-	-	-	(D)	-
3312C	Other steel mill products, except wire products	395.6	383.9	-	(D)	-	-	(D)
33120	Blast furnace and steel mill products, n.s.k.	108.5	(D)	-	-	-	(D)	(D)
3313-	Electrometallurgical products	728.0	(D)	653.1	-	-	-	(D)
33131	Ferromanganese	(D)	-	(D)	-	-	-	(D)
33132	Ferrosilicon	75.1	-	75.1	-	-	-	-
33133	Other ferroalloy products produced in electric furnaces ..	243.0	-	231.6	-	-	-	11.4
33134	Electrometallurgical products, n.s.k.	43.3	(D)	(D)	-	-	-	(D)
33130	Electrometallurgical products, n.s.k.	-	(D)	(D)	-	-	-	(D)
3315-	Steel wire and related products	2 761.1	371.6	-	2 279.3	(D)	-	(D)
33151	Noninsulated ferrous wire rope, cable, and strand, produced in wire drawing plants (also see code 34961) ...	522.0	79.3	-	427.3	-	-	15.4
33152	Steel nails and spikes, produced in wire drawing plants (also see code 34967)	227.8	87.8	-	134.2	-	-	5.8
33155	Steel wire, not produced in steel mills (also see code 33125)	1 000.6	-	-	947.4	(D)	-	(D)
33156	Fencing and fence gates, produced in wire drawing plants (also see code 34966)	301.6	106.1	-	176.0	-	-	19.5
33157	Ferrous wire cloth and other ferrous woven wire products, produced in wire drawing plants (also see code 34964) ...	68.0	(D)	-	(D)	-	-	(D)
33159	Other fabricated ferrous wire products, except springs, produced in wire drawing plants (also see code 34968) ...	547.2	(D)	-	454.5	-	-	(D)
33150	Steel wire and related products, n.s.k.	93.9	-	-	(D)	-	-	(D)
3316-	Cold finishing of steel shapes	2 803.4	-	-	4.2	2 711.6	(D)	(D)
33167	Cold rolled steel sheet and strip, not produced in steel mills (also see code 33127)	1 815.3	-	-	(D)	1 742.0	(D)	59.5
33168	Cold finished steel bars and bar shapes, not produced in steel mills (also see code 33128)	905.8	-	-	(D)	(D)	(D)	.8
33160	Cold finishing of steel shapes, n.s.k.	82.4	-	-	-	(D)	-	(D)
3317-	Steel pipe and tubes	3 657.1	(D)	-	-	(D)	3 419.9	201.7
33170	Steel pipe and tubes	3 657.1	(D)	-	-	(D)	3 419.9	201.7
	OTHER SHIPMENTS BY FOUR-DIGIT PRODUCT GROUP							
3079-	Miscellaneous plastics products	(X)	-	-	-	-	(D)	(X)
3321-	Gray iron castings	(X)	127.6	-	-	-	(D)	(X)
3325-	Steel castings, n.e.c.	(X)	(D)	-	-	-	(D)	(X)
3339-	Primary nonferrous metals, n.e.c.	(X)	-	(D)	-	-	-	(X)
3341-	Secondary nonferrous metals	(X)	(D)	-	-	-	-	(X)
3351-	Copper rolling and drawing	(X)	-	-	(D)	(D)	(D)	(X)
3356-	Nonferrous rolling and drawing, n.e.c.	(X)	(D)	-	(D)	(D)	-	(X)
3357-	Nonferrous wire drawing and insulating	(X)	-	-	9.7	-	-	(X)
3399-	Primary metal products, n.e.c.	(X)	-	(D)	-	-	-	(X)
3429-	Hardware, n.e.c.	(X)	-	-	(D)	-	(D)	(X)
3441-	Fabricated structural metal	(X)	-	-	-	-	(D)	(X)
3443-	Fabricated plate work (boiler shops)	(X)	(D)	-	-	-	(D)	(X)
3444-	Sheet metal work	(X)	(D)	-	-	(D)	(D)	(X)
3449-	Miscellaneous metal work	(X)	65.6	-	-	-	(D)	(X)
3452-	Bolts, nuts, rivets, and washers	(X)	(D)	-	-	-	-	(X)
3462-	Iron and steel forgings	(X)	117.4	-	(D)	-	-	(X)
3469-	Metal stampings, n.e.c.	(X)	(D)	-	(D)	-	(D)	(X)
3499-	Fabricated metal products, n.e.c.	(X)	(D)	-	-	(D)	(D)	(X)
3523-	Farm machinery and equipment	(X)	(D)	-	-	-	(D)	(X)
3536-	Hoists, cranes, and monorails	(X)	-	-	(D)	-	-	(X)
3644-	Noncurrent-carrying wiring devices	(X)	-	-	-	-	(D)	(X)
3679-	Electronic components, n.e.c.	(X)	-	-	-	-	(D)	(X)
	MISCELLANEOUS RECEIPTS							
93000 00	Receipts for work done for others on their materials	(X)	35.6	(D)	.7	7.0	5.5	(X)
93000 86	Receipts for conversion of steel for other companies, including fees received from both steel-producing and nonsteel companies	(X)	70.9	-	4.0	8.4	(D)	(X)
93000 87	Receipts for processing (rolling, drawing, extruding, etc.) of materials owned by others on a toll basis for nonferrous metal mill shapes	(X)	(D)	-	(D)	(D)	(D)	(X)
99980 13	Sales of scrap and refuse	(X)	168.2	(D)	2.2	6.1	10.8	(X)
99980 41	Receipts for research and development work	(X)	(D)	-	(D)	(D)	-	(X)
99980 61	Receipts for repair work	(X)	-	-	-	-	(D)	(X)
99980 98	Other miscellaneous receipts, including receipts for repair work, etc.	(X)	246.8	(D)	.4	1.3	(D)	(X)
99989 00	Sales of products bought and resold without further manufacture, processing, or assembly at establishment	(X)	334.7	7.3	65.9	12.4	60.0	(X)
99980 00	Miscellaneous receipts, n.s.k.	(X)	(D)	(D)	(D)	(D)	3.2	(X)

Table 5c-2. **Industry-Product Analysis—Other Industries With Shipments of Primary Products: 1982**

[Million dollars. Table is a continuation of table 5c-1 and shows where products of industries in this chapter (referred to as primary products and listed in table 6a) are made. To extent that some of primary products are made in industries not included in this chapter, value of such shipments is shown in "Other industries" column of table 5c-1. Specified "Other industries" are listed in this table if they account for more than \$5 million of products primary to this chapter. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Other industries	Value	1982 product code	Other industries	Value
3312-	BLAST FURNACES AND STEEL MILLS		3315-	STEEL WIRE AND RELATED PRODUCTS	
3325	Steel foundries, n.e.c.	(D)	3321	Gray iron foundries	(D)
3361	Aluminum foundries	(D)	3357	Nonferrous wire drawing and insulating	41.5
3441	Fabricated structural metal	13.9	3623	Welding apparatus, electric	(D)
3449	Miscellaneous metal work	(D)	3644	Noncurrent-carrying wiring devices	(D)
3452	Bolts, nuts, rivets, and washers	(D)	3316-	COLD FINISHING OF STEEL SHAPES	
3531	Construction machinery	(D)	3351	Copper rolling and drawing	(D)
3533	Oil field machinery	(D)	3449	Miscellaneous metal work	(D)
3599	Machinery, except electrical, n.e.c.	7.4	3644	Noncurrent-carrying wiring devices	(D)
3313-	ELECTROMETALLURGICAL PRODUCTS		3679	Electronic components, n.e.c.	(D)
2816	Inorganic pigments	(D)	3317-	STEEL PIPE AND TUBES	
3334	Primary aluminum	(D)	3321	Gray iron foundries	(D)
3339	Primary nonferrous metals, n.e.c.	(D)	3443	Fabricated plate work (boiler shops)	(D)
			3523	Farm machinery and equipment	(D)
			3644	Noncurrent-carrying wiring devices	(D)

Table 6a-1. **Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977**

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	Year	Number of companies with shipments of \$100,000 or more	Quantity of total production	Product shipments ¹						Quantity produced and consumed in the same plant in manufacture of other products
					Total, including interplant transfers		Commercial		Interplant transfers		
					Quantity ²	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)	
BLAST FURNACES AND STEEL MILLS											
3312- -- 33131 -- 33132 -- 33133 -- 33134 15 33134 89 33155 -- 3316- -- 3317- -- 34627 -- 34628 --	Total -----	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	44 122.8 (D)	(X) (X)	(X) (X)	(X) (X)	(X) (X)	
	Made in steel mills -----	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	35 456.8 46 065.7	(X) (X)	(X) (X)	(X) (X)	(X) (X)	
	Made in other industries -----	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	8 666.0 (D)	(X) (X)	(X) (X)	(X) (X)	(X) (X)	
33121 -- 33131 -- 33132 -- 33133 -- 33134 15 33134 89	Coke oven and blast furnace products, and selected electrometallurgical products (see table 6a-2 for separate industry data) -----	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	2 486.0 3 850.3	(X) (X)	(D) (X)	(X) (X)	(D) (X)	
	Made in coke ovens and blast furnaces -----	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	1 873.1 3 032.2	(X) (X)	(D) (NA)	(X) (X)	(D) (NA)	
	Made in electric and other furnaces -----	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	612.9 818.1	(D) (X)	(D) (NA)	(D) (X)	(D) (NA)	
33121 11	Coke, except screenings and breeze ----- 1,000 s tons--	1982 1977	31 32	26 992.9 51 000.8	9 787.2 18 767.4	1 062.6 1 651.7	4 614.4 6 739.7	504.5 692.7	5 172.8 12 027.7	558.1 959.0	18 016.9 33 950.1
33121 12	Screenings and breeze ----- do--	1982 1977	21 23	2 620.9 3 526.4	1 402.1 1 927.6	56.1 70.3	1 339.3 (D)	53.7 (D)	62.8 (D)	2.4 (D)	1 025.0 1 954.7
33121 31	Coke oven gas ----- mil cu ft--	1982 1977	4 12	25 474.1 750.8	(D) 80.2	(D) 43.7	(D) (D)	(D) (D)	(D) (D)	(D) (D)	23 836.0 636.3
33121 41	Ammonia (sulfate and liquor) ----- do--	1982 1977	11 15	(X) (X)	(X) (X)	20.2 16.0	(X) (X)	20.2 (D)	(X) (X)	- (D)	(X) (X)
33121 51	Crude tar ----- mil gal--	1982 1977	21 30	295.3 518.6	189.1 302.2	137.5 104.9	(D) 275.9	(D) 96.4	(D) 26.3	(D) 8.5	105.7 213.3
33121 71	Crude light oil ----- do--	1982 1977	16 23	94.7 163.1	45.6 98.2	41.4 43.1	(D) (D)	(D) (D)	(D) (D)	(D) (D)	36.5 (D)
33121 81	Light oil derivatives ----- do--	1982 1977	5 7	34.1 80.3	34.6 55.6	31.6 27.6	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)
33121 86	Other coke oven products, including tar derivatives -----	1982 1977	7 5	- (X)	(D) (X)	(D) (D)	(D) (X)	(D) (D)	(D) (X)	(D) (D)	(X) (X)

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	Year	Number of companies with shipments of \$100,000 or more	Quantity of total production	Product shipments ¹						Quantity produced and consumed in the same plant in manufacture of other products
					Total, including interplant transfers		Commercial		Interplant transfers		
					Quantity ²	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)	
	BLAST FURNACES AND STEEL MILLS— Con.										
33121 — 33131 — 33132 — 33133 — 33134 15 33134 89	Coke oven and blast furnace products, and slected electrometallurgical products (see table 6a-2 for separate industry data)—Con.										
33121 91	Blast furnace products: Pig iron, including pig iron with silicon content up to and including 6 percent silicon ----- 1,000 s tons..	1982 1977	9 15	33 836.8 71 349.0	317.9 4 496.4	63.7 652.0	(D) 2 695.6	(D) 429.9	(D) 1 797.0	(D) 221.4	33 652.0 67 311.0
33121 92	Slag ----- do..	1982 1977	7 11	(X) (X)	5 752.2 (S)	8.6 20.6	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
33121 93	Sinter from ore, flue dust, and other materials ----- do..	1982 1977	3 2	16 921.2 27 883.7	1 165.4 (D)	64.4 (D)	80.2 (D)	3.6 (D)	1 085.2 (D)	60.8 (D)	15 766.0 23 055.7
33121 94	Blast furnace gas ----- mil cu ft..	1982 1977	1 1	1 568.2 3 777.8	(D) (D)	(D) (D)	(D) (D)	(D) (D)	- -	- -	1 640.5 3 522.3
33121 85 33131 00	Ferroalloys: As reported in the census of manufactures: Ferromanganese, including briquets ----- 1,000 s tons..	1982 1977	8 (NA)	218.7 (D)	210.6 (D)	113.1 (D)	197.4 (D)	106.9 (D)	13.3 (D)	6.2 (D)	83.1 (D)
33121 79 33132 — 33133 — 33134 89 33134 15	Other ferroalloys, including silvery iron and spiegeleisen ----- do..	1982 1977	(NA) (NA)	673.2 1 549.1	620.6 1 242.1	521.5 659.0	569.5 (D)	440.1 (D)	51.1 (D)	84.1 (D)	89.7 (D)
33121 98	As reported in the Bureau of Mines ----- Other blast furnace products ----- 1,000 s tons..	1982 1977	(NA) (NA)	(X) (X)	826.0 (NA)	652.2 (NA)	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
33121 00	Coke oven and blast furnace products, n.s.k. ----- do..	1982 1977	7 6 (NA) (NA)	13 009.7 (S) (X) (X)	1 213.4 (D) (X) (X)	268.5 (D) 16.0 .2	299.3 (D) (X) (X)	84.1 (D) 16.0 (X)	(D) (D) (X) (X)	(D) (D) - (X)	(D) (S) - (X)
33122 —	Steel ingot and semifinished shapes and forms: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) -----	1982 1977 1982 1977	58 58 (NA) (NA)	(X) (X) (X) (X)	(X) (X) (X) (X)	3 082.0 4 039.3 2 962.8 4 028.9	(X) (NA) (X) (NA)	(X) (NA) (X) (NA)	(X) (NA) (X) (NA)	(X) (NA) (X) (NA)	- (NA) - (NA)
33123 —	Hot rolled sheet and strip, including tin plate, black plate, terne plate, and tin free steel: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) -----	1982 1977 1982 1977	37 36 (NA) (NA)	(X) (X) (X) (X)	(X) (X) (X) (X)	11 913.5 11 057.8 11 935.4 11 919.1	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)
33124 —	Hot rolled bars and bar shapes, plates, structural shapes and piling: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) -----	1982 1977 1982 1977	87 85 (NA) (NA)	(X) (X) (X) (X)	(X) (X) (X) (X)	8 199.2 9 140.9 8 275.8 9 133.4	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)
33125 — 33155 —	Steel wire, including galvanized and other coated wire: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) -----	1982 1977 1982 1977	114 (NA) (NA) (NA)	(X) (X) (X) (X)	(X) (X) (X) (X)	1 392.9 1 336.1 1 347.3 1 284.0	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)
33126 — 3317—	Steel pipe and tubes: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) -----	1982 1977 1982 1977	165 (NA) (NA) (NA)	(X) (X) (X) (X)	(X) (X) (X) (X)	7 218.6 5 620.4 7 099.3 5 552.7	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)	(X) (X) (X) (X)

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	Year	Number of companies with shipments of \$100,000 or more	Quantity of total production	Product shipments¹						Quantity produced and consumed in the same plant in manufacture of other products
					Total, including interplant transfers		Commercial		Interplant transfers		
					Quantity²	Value (million dollars)	Quantity	Value (million dollars)	Quantity	Value (million dollars)	
	BLAST FURNACES AND STEEL MILLS— Con.										
33127 — 33167 —	Cold rolled steel sheet and strip: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) -----	1982 1977	74 (NA)	(X) (X)	(X) (X)	6 977.9 8 582.4	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
		1982 1977	(NA) (NA)	(X) (X)	(X) (X)	6 956.8 7 694.6	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
33128 — 33168 —	Cold finished steel bars and bar shapes: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) -----	1982 1977	69 (NA)	(X) (X)	(X) (X)	1 264.3 1 331.1	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
3312A — 34627 —	Seamless rolled ring forgings, ferrous (see table 6a-3 for detailed data) ----- 1,000 s tons--	1982 1977	22 (NA) (NA) (NA)	(X) (X) (X) (X)	(X) (X) (X) (X)	1 215.5 1 313.8 254.3 207.5	(X) (X) (X) (NA)	(X) (X) (X) (NA)	(X) (X) (X) (NA)	(X) (X) (X) (NA)	(X) (X) - (NA)
3312B — 34628 —	Open die or smith forgings (hammer or press) ferrous (see table 6a-3 for detailed data) ----- do--	1982 1977	(NA) (NA)	(X) (X)	(X) 595.2	747.6 673.6	(X) (NA)	227.5 (NA)	(X) (NA)	520.1 (NA)	- (NA)
3312C —	Other steel mill products, including steel rails, except wire products: As reported in the census of manufactures ----- As reported in the Current Industrial Report MA- 33B, Steel Mill Products (see table 6a-3 for detailed data) -----	1982 1977	(NA) 14	(X) (X)	(X) (X)	395.6 561.1	(X) (NA)	379.1 (NA)	(X) (NA)	16.5 (NA)	- (NA)
33120 00	Blast furnaces and steel mill products, n.s.k., typically for establishments with 20 employees or more (see note) -----	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	409.6 552.9	(X) (NA)	379.1 (NA)	(X) (NA)	16.5 (NA)	- (NA)
		1982 1977	(NA) (NA)	(X) (X)	(X) (X)	108.5 171.7	(X) (X)	(X) (X)	(X) (X)	(X) (X)	(X) (X)
	ELECTROMETALLURGICAL PRODUCTS (see table 6a-2 for separate industry data)										
3313- — 33121 79 33121 85	Total ----- Made in electric furnaces ----- 1,000 s tons-- Made in coke ovens and blast furnaces ----- do-- As reported in the Bureau of Mines ----- do--	1982 1977	(NA) (NA)	(X) (D)	(X) (D)	749.5 (D)	(X) (D)	(X) (D)	(X) (D)	(X) (D)	(X) (D)
		1982 1977	(NA) (NA)	(X) (X)	(X) (X)	728.0 944.1	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)
		1982 1977	(NA) (NA)	(X) (D)	(X) (D)	21.5 (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)
		1982 1977	(NA) (NA)	(X) (NA)	826.0 (NA)	652.2 (NA)	(X) (NA)	(X) (NA)	(X) (NA)	(X) (NA)	(X) (NA)
33131 — 33121 85	Ferromanganese ----- do--	1982 1977	12 (NA)	218.7 (D)	210.6 (D)	113.1 (D)	197.4 (D)	106.9 (D)	13.3 (D)	6.2 (D)	83.1 (D)
33132 —	Ferrochromium (including briquets), ferrochromium silicon, exothermic chromium additives, and other chromium alloys ----- do--	1982 1977	10 (NA)	128.8 (X)	112.6 (X)	75.1 163.5	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)
33133 —	Ferrosilicon (including briquets) and other silicon alloys ----- do--	1982 1977	11 (NA)	406.6 (X)	409.6 (X)	243.0 327.4	375.0 (D)	235.0 (D)	34.6 (D)	8.0 (D)	84.9 (D)
33134 — 33121 79	Other ferroalloys ----- do--	1982 1977	(NA) (NA)	564.9 (X)	176.7 (X)	275.1 290.2	126.7 (NA)	193.5 (NA)	50.1 (NA)	81.5 (NA)	376.5 (D)
33134 15	Super alloys (these superior heat and creep resistant alloys are excluded from alloy categories listed elsewhere) ----- do--	1982 1977	6 4	10.9 24.8	11.1 24.2	98.5 41.0	(D) (D)	(D) (D)	(D) (D)	(D) (D)	(D) (D)
33134 89 33121 79	Other ferroalloys, including silvery iron and spiegeleisen ----- do--	1982 1977	7 10	126.9 199.1	87.3 178.1	104.8 127.1	79.0 (D)	92.3 (D)	8.3 (D)	12.5 (D)	- -
33134 98	Other products made in electric and other furnaces, except blast furnaces ----- do--	1982 1977	10 11	475.0 467.8	89.7 459.2	71.7 122.1	(D) (D)	(D) (D)	(D) (D)	(D) (D)	376.5 376.5
33130 00	Electrometallurgical products, n.s.k., typically for establishments with 10 employees or more (see note) -----	1982 1977	(NA) (NA)	(X) (NA)	(X) (NA)	42.2 (NA)	(X) (NA)	42.2 (NA)	(X) (NA)	- (NA)	- (NA)
33130 02	Electrometallurgical products, n.s.k., typically for establishments with less than 10 employees (see note) -----	1982 1977	(NA) (NA)	(X) (X)	(X) (X)	1.1 3.9	(X) (X)	1.1 3.9	(X) (X)	(X) (X)	(X) (X)

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	STEEL WIRE AND RELATED PRODUCTS (see table 6a-2 for separate industry data)						
3315-- 33125-- 34961-- 34964-- 34966-- 34967-- 34968--	Total -----	(NA)	(X)	5 190.5	(NA)	(X)	4 369.2
	Made in wiredrawing mills -----	(NA)	(X)	2 761.1	(NA)	(X)	2 608.4
	Made in other industries -----	(NA)	(X)	2 429.4	(NA)	(X)	1 760.8
33151-- 34961-- 33151 13 34961 13	Noninsulated ferrous wire rope, cable, and strand -----	(NA)	(X)	913.4	(NA)	(X)	610.5
	Rope and cable made from steel wire (excluding fabricated wire rope assemblies) ----- 1,000 s tons--	63	(S)	419.1	67	(S)	³ 394.6
33151 15 34961 15	Fabricated wire rope assemblies, including lifting slings ----- do--	55	(S)	68.8	(NA)	(X)	(³)
33151 21 34961 21	Composite strand, rope, and cable, including wire strand of different metals, except ACSR ----- do--	22	(S)	83.6	15	(S)	60.4
	Steel wire strand:						
33151 33 34961 35	For prestressed concrete ----- do--	10	(S)	87.7	9	(S)	34.5
33151 35 34961 33	Other, including guard rail cable ----- do--	25	220.3	131.1	12	34.3	55.1
33151 51 34961 51	Wire forms, except rope assemblies ----- do--	86	(S)	119.2	57	(S)	³ 56.4
33151 00 34961 00	Noninsulated ferrous rope, cable, and strand, n.s.k. -----	(NA)	(X)	4.0	(NA)	(X)	9.5
33152-- 34967--	Steel nails and spikes -----	(NA)	(X)	434.4	(NA)	(X)	447.1
	Steel wire nails, spikes, and brads:						
33152 11 34967 11	Bright ----- 1,000 s tons--	28	160.8	91.3	(NA)	168.1	107.1
33152 13 34967 13	Galvanized ----- do--	25	(S)	82.0	(NA)	74.3	52.1
33152 17 34967 15	Cement-coated ----- do--	13	39.3	20.3	(NA)	76.8	43.5
33152 19 34967 17	Other ----- do--	11	*26.6	19.8	(NA)	25.8	25.5
33152 23 34967 19	Steel wire staples ----- do--	24	*188.1	157.2	(NA)	(S)	141.2
33152 25 34967 21	Steel tacks (wire and cut) ----- do--	6	(S)	10.1	(NA)	3.2	6.0
33152 33 34967 23	Steel cut nails, spikes, and brads, including track spikes and horseshoe nails ----- do--	17	(S)	52.0	(NA)	(S)	67.5
33152 00 34967 00	Steel nails and spikes, n.s.k. -----	(NA)	(X)	1.6	(NA)	(X)	4.2
33155-- 33125--	Steel wire:						
	As reported in the census of manufactures -----	114	(X)	1 392.9	(NA)	(X)	1 336.1
	As reported in Current Industrial Report MA-33B, Steel Mill Products ----- 1,000 s tons--	(NA)	(X)	1 347.3	(NA)	(X)	1 284.0
33156-- 34966-- 33156 13 34966 13	Fencing and fence gates -----	(NA)	(X)	446.6	(NA)	(X)	411.6
	Chain link fencing, excluding posts, gates, and fittings ----- 1,000 s tons--	34	*248.9	126.4	32	(S)	170.9
33156 21 34966 21	Wire fence, woven and welded ----- do--	28	274.6	176.7	19	(S)	78.0
33156 35 34966 35	Fence gates, posts, and fittings ----- do--	44	**298.0	120.5	(NA)	(S)	140.6
33156 71 34966 71	Ornamental lawn fence ----- do--	3	(S)	.6	(NA)	(S)	9.1
33156 00 34966 00	Fencing and fence gates, n.s.k. -----	(NA)	(X)	22.5	(NA)	(X)	13.0
33157-- 34964--	Ferrous wire cloth and other ferrous woven wire products -----	(NA)	(X)	272.5	(NA)	(X)	222.1
33157 31 34964 31	Hardware cloth ----- 1,000 s tons--	8	*55.6	24.8	(NA)	8.7	11.4
33157 61 34964 61	Industrial wire cloth, steel ----- mil sq ft--	24	33.5	79.5	30	*129.4	65.4
33157 71 34964 71	Woven wire netting (poultry, fur farm, stucco, etc.) ----- do--	10	*333.9	48.9	8	(S)	50.1

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	STEEL WIRE AND RELATED PRODUCTS (see table 6a-2 for separate industry data)—Con.						
33157 — 34964 — 33157 99 34964 99	Ferrous wire cloth and other woven wire products—Con.						
33157 00 34964 00	Other wire cloth and woven wire products, including diamond cloth, spiral cloth, drying belts, insect screening, stainless steel paper machine wire cloth, etc. ----- mil sq ft..	38	(S)	117.9	(NA)	(S)	93.3
33159 — 34968 — 33159 41 34968 41	Ferrous wire cloth and other ferrous woven wire products, n.s.k. -----	(NA)	(X)	1.4	(NA)	(X)	1.9
33159 — 34968 — 33159 41 34968 41	Other fabricated ferrous wire products, except springs -----	(NA)	(X)	1 636.8	(NA)	(X)	1 265.4
33159 49 34968 49	Wire chain, tire ----- 1,000 s tons..	9	(S)	40.0	9	(S)	30.9
33159 51 34968 51	Wire chain, other ----- do..	31	(S)	181.1	25	(S)	158.3
33159 55 34968 55	Barbed and twisted wire ----- do..	16	84.9	60.6	14	(S)	52.0
33159 55 34968 55	Wire bale and ties ----- do..	18	(S)	44.8	15	(S)	23.9
33159 61 34968 61	Welded steel wire fabric: Concrete reinforcing mesh ----- do..	41	*594.5	269.6	43	*741.9	250.7
33159 65 34968 65	Other welded steel wire fabric ----- do..	30	(S)	81.2	14	93.8	46.2
33159 71 34968 71	Wire garment hangers ----- mil lb..	13	220.6	85.3	16	(S)	68.7
33159 73 34968 73	Wire carts, including household, grocery, and industrial -----	15	(X)	103.8	(NA)	(X)	72.5
33159 75 34968 75	Steel wire cages -----	26	(X)	63.2	(NA)	(X)	43.5
33159 77 34968 77	Paper clips -----	3	(X)	(*)	4	(X)	7.8
33159 98 34968 98	Other wire products, including guards, baskets, florists' designs, kitchenware, etc. -----	327	(X)	4698.0	(NA)	(X)	498.8
33159 00 34968 00	Other fabricated ferrous wire products, except springs, n.s.k. -----	(NA)	(X)	9.2	(NA)	(X)	12.1
33150 00	Steel wire and wire products, n.s.k., typically for establishments with 20 employees or more (see note) -----	(NA)	(X)	61.1	(NA)	(X)	42.2
33150 02	Steel wire and wire products, n.s.k., typically for establishments with less than 20 employees (see note) -----	(NA)	(X)	32.9	(NA)	(X)	34.0
	COLD FINISHING OF STEEL SHAPES (see table 6a-2 for separate industry data)						
3316- -- 33127 -- 33128 --	Total -----	(NA)	(X)	8 324.5	(NA)	(X)	9 938.6
33167 --	Made in cold finishing of steel industry -----	(NA)	(X)	2 803.4	(NA)	(X)	2 562.8
33127 --	Made in steel mills -----	(NA)	(X)	5 521.1	(NA)	(X)	7 375.8
33127 --	Cold rolled steel sheet and strip:						
33168 --	As reported in the census of manufactures -----	74	(X)	6 977.9	(NA)	(X)	8 582.4
33128 --	As reported in the Current Industrial Report MA-33B, Steel Mill Products (see table 6a-3 for detailed data) -----	(NA)	(X)	6 956.8	(NA)	(X)	7 694.6
33128 --	Cold finished steel bars and bar shapes:						
33160 00	As reported in the census of manufactures -----	69	(X)	1 264.3	(NA)	(X)	1 331.1
33160 02	As reported in the Current Industrial Report MA-33B, Steel Mill Products (see table 6a-3 for detailed data) -----	(NA)	(X)	1 215.5	(NA)	(X)	1 313.8
33160 00	Cold finished steel shapes, n.s.k., typically for establishments with 10 employees or more (see note) -----	(NA)	(X)	49.3	(NA)	(X)	4.6
33160 02	Cold finished steel shapes, n.s.k., typically for establishments with less than 10 employees (see note) -----	(NA)	(X)	33.0	(NA)	(X)	20.4

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
	STEEL PIPE AND TUBES						
3317- — 33126 —	Total -----	165	(X)	7 218.6	(NA)	(NA)	5 620.7
	As reported in the census of manufacturers:						
	Made in steel pipe and tube industry -----	144	(X)	3 657.1	120	(NA)	2 620.3
	Made in steel mills -----	21	(X)	3 561.5	23	(NA)	3 000.4
	As reported in the Current Industrial Report MA-33B, Steel Mill Products -----	(NA)	(X)	7 099.3	(NA)	(NA)	5 552.7
33170 02	Steel pipe and tube, n.s.k., typically for establishments with less than 20 employees (see note) -----	(NA)	(X)	-	(NA)	(X)	17.1

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative records data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

²For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

³For 1977, product code 33151 15 was included with product codes 33151 13 and 33151 51; product code 34961 15 was included with product codes 34961 13 and 34961 51.

⁴For 1982, product codes 33159 77 and 34968 77 are combined with product codes 33159 98 and 34968 98 to avoid disclosing data for individual companies.

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
33121 85 33131 00	Ferromanganese ----- 1,000 s tons ..	8	210.6	113.1	(NA)	(D)	(D)
33121 85 33131 00	Made in blast furnaces (industry 3312) ----- do..	2	(D)	(D)	2	(D)	(D)
	Made in electric furnaces and other furnaces (industry 3313 and other industries) ----- do..	7	(D)	(D)	11	408.1	159.1
33121 79 33132 — 33133 — 33134 15 33134 89	Other ferroalloys, including silvery iron and spiegeleisen ----- do..	(NA)	620.6	521.5	10	178.1	127.1
33121 79 33132 —	Made in blast furnaces (industry 3312) ----- do..	2	(D)	(D)	(NA)	(D)	(D)
	Ferrosilicon (including briquets), ferrochromium silicon, exothermic chromium additives, and other chromium alloys, made in electric and other furnaces) ----- do..	10	112.6	75.1	(NA)	(D)	(D)
33133 —	Ferrosilicon (including briquets) and other silicon alloys, made in electric and other furnaces ----- do..	11	409.6	243.0	(NA)	1 242.1	659.0
33134 89	Made in electric furnaces and other furnaces (industry 3313 and other industries) ----- do..	5	(D)	(D)	10	178.1	127.1
33125 — 33155 — 33125 00 33155 00	Steel wire -----	114	(X)	1 392.9	(NA)	(X)	1 336.1
	Made in steel mills (industry 3312) -----	16	(X)	392.4	24	(X)	606.3
	Made in steel wiredrawing (industry 3315) and other industries -----	99	(X)	1 000.6	84	(X)	729.8
33126 — 3317- — 33126 00 3317- —	Steel pipe and tube -----	165	(X)	7 218.6	(NA)	(X)	5 620.4
	Made in steel mills (industry 3312) -----	21	(X)	3 561.5	23	(X)	3 000.4
	Made in steel pipe and tubes (industry 3317) and other industries -----	144	(X)	3 657.1	120	(X)	2 620.3
33127 — 33167 — 33127 00 33167 00	Cold-rolled steel sheets and strips -----	74	(X)	6 977.9	(NA)	(X)	8 582.4
	Made in steel mills (industry 3312) -----	18	(X)	5 162.6	27	(X)	6 953.9
	Made in cold finishing of steel shapes (industry 3316) and other industries -----	56	(X)	1 815.3	45	(X)	1 628.5
33128 — 33168 — 33128 00 33168 00	Cold finished steel bars and bar shapes -----	69	(X)	1 264.3	(NA)	(X)	1 331.1
	Made in steel mills (industry 3312) -----	13	(X)	358.5	17	(X)	421.9
	Made in cold finishing of steel shapes (industry 3316) and other industries -----	56	(X)	905.8	39	(X)	909.2
33160 00	Cold finishing of steel shapes, n.s.k. -----	(NA)	(X)	82.4	(NA)	(X)	25.1

See footnotes at end of table.

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
3312A — 34627 —	Seamless rolled ring forgings, ferrous 1,000 s tons..	22	(X)	254.3	(NA)	(S)	207.5
3312A — 34627 —	Made in steel mills (industry 3312)	2	(X)	(D)	(NA)	(S)	93.6
3312A — 34627 —	Made in steel forgings (industry 3462) and other industries	20	(X)	(D)	(NA)	(S)	113.8
3312B — 34628 —	Open die or smith forgings (hammer or press), ferrous..... do..	79	(X)	747.6	(NA)	595.2	673.6
3312B — 34628 —	Made in steel mills (industry 3312)	10	(X)	(D)	(NA)	185.6	288.9
3312B — 34628 —	Made in steel forgings (industry 3462)..... do..	69	(X)	(D)	(NA)	309.6	384.7
33121 85 33131 —	Ferromanganese..... 1,000 s tons (gr wt)..	12	210.6	113.1	(NA)	(D)	(D)
33121 85 33131 —	Made in blast furnaces (industry 3312)	5	(D)	(D)	2	(D)	(D)
33121 85 33131 —	Made in electric and other furnaces (industry 3313 and other industries)	7	(D)	(D)	11	408.1	159.1
33134 — 33121 79	Other ferroalloys and products made in electric and other furnaces, except blast furnaces	(NA)	176.7	275.1	(NA)	661.5	290.2
33134 — 33121 79	Other ferroalloys and products made in electric and other furnaces, except blast furnaces	(NA)	(D)	(D)	(NA)	661.5	290.2
33134 15 33121 79	Superalloys	4	(D)	(D)	4	24.2	41.0
33134 89 33121 79	Other ferroalloys, including silvery iron and spiegeleisen	7	87.3	104.8	(NA)	178.1	127.1
33134 89 33121 79	Made in blast furnaces (industry 3312)	5	(D)	(D)	—	—	—
33134 89 33121 79	Made in electric and other furnaces (industry 3313 and other industries)	2	(D)	(D)	10	178.1	127.1
33125 — 3315 — 34961 — 34964 — 34966 — 34967 — 34968 —	Steel wire and related products	(NA)	(X)	5 190.5	(NA)	(X)	4 369.2
33125 — 3315 — 34961 — 34964 — 34966 — 34967 — 34968 —	Steel wire made in steel mills	16	(X)	392.4	(NA)	(X)	606.3
33125 — 3315 — 34961 — 34964 — 34966 — 34967 — 34968 —	Steel wire and related products made by wire drawers	(NA)	(X)	2 761.1	(NA)	(X)	2 608.4
33125 — 3315 — 34961 — 34964 — 34966 — 34967 — 34968 —	Miscellaneous fabricated steel wire products not made by wire drawers	(NA)	(X)	2 037.1	(NA)	(X)	1 154.5
33151 — 34961 — 33151 — 34961 — 33151 13 34961 13	Noninsulated ferrous wire rope, cable, and strand	(NA)	(X)	913.4	(NA)	(X)	610.5
33151 — 34961 — 33151 — 34961 — 33151 13 34961 13	Made in industries 3312 and 3315	(NA)	(X)	522.0	(NA)	(X)	439.1
33151 — 34961 — 33151 — 34961 — 33151 13 34961 13	Made in industry 3496 and other industries	(NA)	(X)	391.4	(NA)	(X)	171.4
33151 13 34961 13	Iron and steel wire rope and cable..... 1,000 s tons..	63	(S)	419.1	67	(S)	3394.6
33151 13 34961 13	Made in industries 3312 and 3315	16	166.6	286.8	29	(S)	3307.3
33151 13 34961 13	Made in industry 3496 and other industries	47	(S)	132.3	38	(S)	387.3
33151 15 34961 15	Fabricated wire rope assemblies, including lifting slings	55	(S)	68.8	(NA)	(NA)	(3)
33151 15 34961 15	Made in industries 3312 and 3315	16	(D)	(D)	(NA)	(NA)	(3)
33151 15 34961 15	Made in industry 3496 and other industries	39	(D)	(D)	(NA)	(NA)	(3)
33151 21 34961 21	Composite strand, rope, and cable, including wire strands of different metals, except ACSR	22	(S)	83.6	(NA)	(S)	60.4
33151 21 34961 21	Made in industries 3312 and 3315	4	32.6	40.7	7	*33.3	36.9
33151 21 34961 21	Made in industry 3496 and other industries	18	(S)	42.9	8	(S)	23.5
33151 33 34961 35	Steel wire strand for prestressed concrete..... do..	10	(S)	87.7	(NA)	(S)	34.5
33151 33 34961 35	Made in industries 3312 and 3315	9	(D)	(D)	5	49.9	(D)
33151 33 34961 35	Made in industry 3496 and other industries	1	(D)	(D)	4	(S)	(D)
33151 33 34961 35	Steel wire strand, except wire strand for prestressed concrete, including guard rail cable	25	220.3	131.1	(NA)	34.3	55.1
33151 33 34961 35	Made in industries 3312 and 3315	15	149.6	88.4	11	(D)	(D)
33151 33 34961 35	Made in industry 3496 and other industries	10	*70.7	42.7	1	(D)	(D)
33151 51 34961 51	Wire forms	86	(S)	119.2	(NA)	(S)	356.4
33151 51 34961 51	Made in industries 3312 and 3315	6	(S)	7.5	10	*22.3	315.8
33151 51 34961 51	Made in industry 3496 and other industries	80	(S)	111.6	47	(S)	340.6
33151 00 34961 00	Noninsulated ferrous wire, rope, cable, and strand, n.s.k.....	(NA)	(X)	4.0	(NA)	(X)	9.5
33151 00 34961 00	Made in industries 3312 and 3315	(NA)	(X)	(Z)	(NA)	(X)	(Z)
33151 00 34961 00	Made in industries 3496 and other industries	(NA)	(X)	4.0	(NA)	(X)	9.5
33152 — 34967 —	Steel nails and spikes.....	(NA)	(X)	434.4	(NA)	(X)	447.1
33152 — 34967 —	Made in industries 3312 and 3315	(NA)	(X)	227.8	(NA)	(X)	359.0
33152 — 34967 —	Made in industry 3496 and other industries	(NA)	(X)	206.6	(NA)	(X)	88.1
33152 11 34967 11	Steel wire nails, spikes, and brads:						
33152 11 34967 11	Bright..... 1,000 s tons..	28	160.8	91.3	(NA)	168.1	107.1
33152 11 34967 11	Made in industries 3312 and 3315	16	113.2	72.4	(NA)	(D)	(D)
33152 11 34967 11	Made in industry 3496 and other industries	12	47.7	18.9	(NA)	(D)	(D)

See footnotes at end of table.

Table 6a-2. **Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977—Con.**

Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
33152 — 34967 —	Steel nails and spikes—Con. Made in industry 3496 and other industries—Con. Steel wire nails, spikes, and brads—Con.						
33152 13 34967 13	Galvanized 1,000 s tons..	25	(S)	82.0	(NA)	74.3	52.1
33152 13	Made in industries 3312 and 3315	16	*57.1	53.3	(NA)	(D)	(D)
34967 13	Made in industry 3496 and other industries	9	(S)	28.7	(NA)	(D)	(D)
33152 17 34967 15	Cement-coated do..	13	39.3	20.3	(NA)	76.8	43.5
33152 17	Made in industries 3312 and 3315	11	(D)	(D)	(NA)	(D)	(D)
34967 15	Made in industry 3496 and other industries	2	(D)	(D)	(NA)	(D)	(D)
33152 19 34967 17	Other nails, spikes, etc..... do..	11	*26.6	19.8	(NA)	25.8	25.5
33152 19	Made in industries 3312 and 3315	5	(D)	(D)	(NA)	(D)	(D)
34967 17	Made in industry 3496 and other industries	6	(D)	(D)	(NA)	(D)	(D)
33152 23	Steel wire staples do..	24	*188.1	157.2	(NA)	(S)	141.2
34967 19	Made in industries 3312 and 3315	7	36.5	41.4	(NA)	(D)	(D)
33152 23	Made in industry 3496 and other industries	17	**151.6	115.8	(NA)	(D)	(D)
33152 25 34967 21	Steel tacks (wire and cut)..... do..	6	(S)	10.1	(NA)	3.2	6.0
33152 25	Made in industries 3312 and 3315	—	—	—	(NA)	(D)	(D)
34967 21	Made in industry 3496 and other industries	6	(S)	10.1	(NA)	(D)	(D)
33152 33 34967 23	Steel cut nails, spikes, and brads, including track spikes and horseshoe nails do..	17	(S)	52.0	(NA)	(S)	67.5
33152 33	Made in industries 3312 and 3315	8	*44.3	24.8	(NA)	(D)	(D)
34967 23	Made in industry 3496 and other industries	9	(S)	27.2	(NA)	(D)	(D)
33152 00 34967 00	Steel nails and spikes, n.s.k.	(NA)	(X)	1.6	(NA)	(X)	4.2
33152 00	Made in industries 3312 and 3315	(NA)	(X)	1.6	(NA)	(D)	(D)
34967 00	Made in industry 3496 and other industries	(NA)	(X)	—	(NA)	(D)	(D)
33125 — 33155 —	Steel wire 114	(X)	1 392.9	(NA)	(X)	1 336.1	
33125 00	Made in steel mills (industry 3312).....	16	(X)	392.4	24	(X)	606.3
33155 00	Made in steel wiredrawing (industry 3315) and other industries	99	(X)	1 000.6	84	(X)	729.8
33156 — 34966 —	Fencing and fence gates (NA)	(X)	446.6	(NA)	(X)	411.6	
33156 —	Made in industries 3312 and 3315	(NA)	(X)	301.6	(NA)	(X)	280.3
34966 —	Made in industry 3496 and other industries	(NA)	(X)	145.1	(NA)	(X)	131.3
33156 13 34966 13	Chain link fencing, excluding posts, gates, and fittings 1,000 s tons..	34	*248.9	126.4	(NA)	(S)	170.9
33156 13	Made in industries 3312 and 3315	12	**102.7	63.9	12	(S)	125.8
34966 13	Made in industry 3496 and other industries	22	146.2	62.5	20	(S)	45.1
33156 35 34966 35	Fence posts, gates, and fittings do..	44	**298.0	120.5	(NA)	(S)	140.6
33156 35	Made in industries 3312 and 3315	12	*70.8	66.3	(NA)	(D)	(D)
34966 35	Made in industry 3496 and other industries	32	**227.1	54.5	(NA)	(D)	(D)
33156 21 34966 21	Wire fence, woven and welded do..	28	274.6	176.7	(NA)	(S)	78.0
33156 21	Made in industries 3312 and 3315	13	235.9	148.7	12	135.1	72.1
34966 21	Made in industry 3496 and other industries	15	(S)	27.9	7	(S)	5.9
33156 71	Ornamental lawn fence do..	3	(S)	.6	(NA)	(S)	9.1
34966 71	Made in industries 3312 and 3315	—	—	—	(NA)	(D)	(D)
33156 71	Made in industry 3496 and other industries	3	(S)	.6	(NA)	(D)	(D)
33156 00 34966 00	Fencing and fence gates, n.s.k.	(NA)	(X)	22.5	(NA)	(X)	13.0
33156 00	Made in industries 3312 and 3315	(NA)	(X)	22.5	(NA)	(D)	(D)
34966 00	Made in industry 3496 and other industries	—	—	—	(NA)	(D)	(D)
33157 — 34964 —	Ferrous wire cloth and other woven ferrous wire products (NA)	(X)	272.5	(NA)	(X)	222.1	
33157 —	Made in industries 3312 and 3315	(NA)	(X)	68.0	(NA)	(X)	84.5
34964 —	Made in industry 3496 and other industries	(NA)	(X)	204.4	(NA)	(X)	137.7
33157 31 34964 31	Hardware cloth 1,000 s tons..	8	55.1	24.8	(NA)	8.7	11.4
33157 31	Made in industries 3312 and 3315	3	(D)	(D)	(NA)	(D)	(D)
34964 31	Made in industry 3496 and other industries	5	(D)	(D)	(NA)	(D)	(D)
33157 61 34964 61	Industrial wire cloth, steel mil sq ft..	24	33.5	79.5	(NA)	*129.4	65.4
33157 61	Made in industries 3312 and 3315	3	(D)	(D)	5	*104.3	16.9
34964 61	Made in industry 3496 and other industries	21	(D)	(D)	25	**25.3	48.5
33157 71 34964 71	Woven wire netting (poultry, fur farm, stucco, etc.) do..	10	*333.9	48.9	(NA)	(S)	50.1
33157 71	Made in industries 3312 and 3315	8	(D)	(D)	8	(D)	(D)
34964 71	Made in industry 3496 and other industries	2	(D)	(D)	—	(D)	(D)
33157 99 34964 99	Other wire cloth and woven wire products, including diamond cloth, spiral cloth, drying belts, insect screening, stainless steel paper machines mil sq ft..	38	(S)	117.9	(NA)	(S)	493.3
33157 99	Made in industries 3312 and 3315	2	(D)	(D)	(NA)	(D)	(D)
34964 98	Made in industry 3496 and other industries	36	(D)	(D)	(NA)	(D)	(D)

See footnotes at end of table.

Table 6a-2. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1982 and 1977—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 product code	Product	1982			1977		
		Number of companies with shipments of \$100,000 or more	Product shipments ¹		Number of companies with shipments of \$100,000 or more	Product shipments ¹	
			Quantity ²	Value (million dollars)		Quantity ²	Value (million dollars)
33157 34964 —	Ferrous wire cloth and other ferrous woven wire products—Con.						
33157 00 34964 00	Ferrous wire cloth and other woven ferrous wire products, n.s.k.	(NA)	(X)	1.4	(NA)	(X)	1.9
	Made in industries 3312 and 3315	—	—	—	(NA)	(X)	(D)
	Made in industry 3496 and other industries	(NA)	(X)	1.4	(NA)	(X)	(D)
33159 — 34968 —	Other fabricated wire products	(NA)	(X)	1 636.8	(NA)	(X)	1 265.4
33159 —	Made in industries 3312 and 3315	(NA)	(X)	547.2	(NA)	(X)	639.5
34968 —	Made in industry 3496 and other industries	(NA)	(X)	1 089.6	(NA)	(X)	625.9
	Wire chain:						
33159 41 34968 41	Tire 1,000 s tons..	9	(S)	40.0	(NA)	(S)	30.9
33159 41	Made in industries 3312 and 3315	5	14.2	34.3	5	30.8	27.9
34968 41	Made in industry 3496 and other industries	4	(S)	5.7	4	(S)	3.1
33159 49 34968 49	Other do..	31	(S)	181.1	(NA)	(S)	158.3
33159 49	Made in industries 3312 and 3315	6	(S)	97.0	7	107.2	104.5
34968 49	Made in industry 3496 and other industries	25	(S)	84.1	18	(S)	53.8
33159 51 34968 51	Barbed and twisted steel wire do..	16	84.9	60.6	(NA)	(S)	52.0
33159 51	Made in industries 3312 and 3315	11	78.6	59.0	11	(D)	(D)
34968 51	Made in industry 3496 and other industries	5	6.2	1.6	3	(D)	(D)
33159 55	Wire bale ties do..	18	(S)	44.8	(NA)	(S)	23.9
34968 55	Made in industries 3312 and 3315	7	26.7	18.5	10	41.9	19.4
34968 55	Made in industry 3496 and other industries	11	(S)	26.2	5	(S)	4.5
	Welded steel wire fabric:						
33159 61 34968 61	Concrete reinforcing mesh do..	41	*594.5	269.6	(NA)	*741.9	250.7
33159 61	Made in industries 3312 and 3315	17	*481.1	217.5	27	718.8	241.8
34968 61	Made in industry 3496 and other industries	24	*113.4	51.9	16	*23.1	8.9
33159 65 34968 65	Other welded steel wire fabric do..	30	(S)	81.2	(NA)	93.8	46.2
33159 65	Made in industries 3312 and 3315	8	60.7	39.0	8	91.3	39.2
34968 65	Made in industry 3496 and other industries	22	(S)	42.2	6	2.5	7.0
33159 71 34968 71	Wire garment hangers mil lb..	13	220.6	85.3	(NA)	(S)	68.7
33159 71	Made in industries 3312 and 3315	4	153.7	57.7	6	(S)	48.2
34968 71	Made in industry 3496 and other industries	9	66.9	27.6	10	*72.7	20.5
33159 73 34968 73	Wire carts, including household, grocery, and industrial	15	(X)	103.8	(NA)	(X)	72.5
33159 73	Made in industries 3312 and 3315	—	—	—	(NA)	(X)	(D)
34968 73	Made in industry 3496 and other industries	15	(X)	103.8	(NA)	(X)	(D)
33159 75	Steel wire cages do..	26	(X)	63.2	(NA)	(X)	43.5
34968 75	Made in industries 3312 and 3315	—	—	—	(NA)	(X)	(D)
33159 75	Made in industry 3496 and other industries	26	(X)	63.2	(NA)	(X)	(D)
33159 77	Paper clips do..	3	(X)	(⁴)	4	(X)	7.8
34968 77	Made in industries 3312 and 3315	—	—	—	(NA)	(X)	(D)
33159 77	Made in industry 3496 and other industries	3	(X)	(⁴)	(NA)	(X)	(D)
33159 98	Other wire products, including gaskets, guards, florists' designs, kitchenware, etc.	327	(X)	*698.0	(NA)	(X)	498.8
33159 98	Made in industries 3312 and 3315	12	(X)	20.6	(NA)	(X)	(D)
34968 98	Made in industry 3496 and other industries	315	(X)	*677.3	(NA)	(X)	(D)
33159 00 34968 00	Other fabricated wire products, n.s.k.	(NA)	(X)	9.2	(NA)	(X)	12.1
33159 00	Made in industries 3312 and 3315	(NA)	(X)	3.3	(NA)	(X)	(D)
34968 00	Made in industry 3496 and other industries	(NA)	(X)	5.9	(NA)	(X)	(D)

Note: In 1982 Census of Manufactures, data for establishments of small single-unit companies with up to 20 employees were estimated from administrative records data rather than data actually collected from respondents. Employment cutoff used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1982 and 1977 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

¹Data reported by all producers, not just those with shipments of \$100,000 or more.

²For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

³For 1977, product code 33151 15 was included with product codes 33151 13 and 33151 51; product code 34961 15 was included with product codes 34961 13 and 34961 51.

⁴For 1982, product codes 33159 77 and 34968 77 are combined with product codes 33159 98 and 34968 98 to avoid disclosing data for individual companies.

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Table 6a-3. Receipts, Consumption, and Shipments of Steel Mill Products: 1982 and 1977

[Quantity in short tons; value in thousand dollars. For meaning of abbreviations and symbols, see introductory text]

1982 product code ¹	Grade and product	1982							
		Receipts ² (quantity)	Steel consumed in producing plants (quantity)	Shipments ²					
				Total		To other companies		Transfers to other plants of same company	
				Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant
	CARBON STEEL								
33122 11	Ingots -----	295 926	139 543	516 500	163 438	79 277	20 524	437 223	142 914
33122 13	Semifinished products:								
	Blooms, billets, slabs, sheet bars, tin-mill bars, tube rounds, and	2 338 207	456 528	2 424 171	645 475	902 164	239 588	1 522 007	405 887
33122 19	Wire rods -----	1 712 873	89 514	2 549 421	857 688	2 312 280	768 742	237 141	88 946
	Finished products:								
	Plates:								
33124 11	Floor plates -----	21 934	122 076	3 000 644	1 407 565	2 893 910	1 360 422	106 734	47 143
33124 13	Plates, other than floor plates -----								
	Sheets:								
33123 11	Hot-rolled (including enameling sheets) -----	6 677 621	900 144	14 375 690	4 870 321	10 026 698	3 397 653	4 348 992	1 472 668
33167 11	Cold-rolled -----	746 704	285 114	10 895 505	4 727 216	9 942 827	4 318 311	952 678	408 905
	Sheets and strip:								
	Galvanized:								
33123 13	Hot-dipped -----	80 706	12 439	4 357 593	2 291 407	4 173 561	2 187 563	184 032	103 844
33123 15	Electrolytic -----	2 888	-	493 015	286 769	492 438	286 426	577	343
33123 17	All other metallic coated (including long ternes) -----	12 972	9 224	813 648	462 564	768 875	436 067	44 773	26 497
33123 18	Electrical -----								
	Strip:								
33123 19	Hot-rolled -----	504 211	57 534	468 707	215 433	437 938	201 029	30 769	14 404
33167 15	Cold-rolled -----	144 078	5 361	840 277	626 979	685 412	542 940	154 865	84 039
	Tin-mill products:								
33123 26	Electrolytic and hot-dipped tin plate -----	(D)	(D)	3 055 846	1 994 669	(D)	(D)	(D)	(D)
33123 24	Black plate -----	(D)	(D)	377 078	198 278	(D)	(D)	(D)	(D)
33123 27	All other tin-mill products (including tin-free steel short ternes	-	-	933 126	551 417	(D)	(D)	(D)	(D)
	and steel foil) -----	(D)	(D)	2 902 746	1 224 672	2 862 896	1 207 746	39 850	16 926
33124 15	Structural shapes (heavy), sheet piling and bearing piles -----	(D)	(D)						
	Bars:								
33124 22	Hot-rolled bars, except concrete reinforcing -----	734 272	142 949	4 315 900	1 790 847	4 012 811	1 670 065	303 089	120 782
33124 24	Light structurals (less than 3 inches) -----	(D)	(D)	731 657	220 070	547 233	168 853	184 424	51 217
	Concrete reinforcing bars:								
33124 25	Rolled from new billets -----	(D)	(D)	3 792 923	1 081 144	3 068 203	884 147	724 720	196 997
33124 27	Rolled from old materials (rails, axles, etc.) -----	(D)	(D)	925 982	756 927	916 400	749 981	9 582	6 946
33168 11	Cold-finished bars -----	(D)	(D)	1 916	6 812	(D)	(D)	(D)	(D)
33124 29	Tool steel -----	(D)	(D)						
	Rails, wheels, and truck accessories:								
	Rails:								
3312C 11	Standard tee (more than 60 lb per yard) -----	(D)	(D)	479 512	221 750	(D)	(D)	(D)	(D)
3312C 13	All other rails, including light (60 lb per yard or less) -----	(D)	(D)	27 737	15 482	(D)	(D)	(D)	(D)
3312C 15	Joint bars -----	(D)	(D)	12 837	18 161	(D)	(D)	(D)	(D)
3312C 17	Tie plates -----	(D)	(D)	99 292	51 809	(D)	(D)	(D)	(D)
3312C 19	Wheels (rolled and forged) -----	(D)	(D)	72 342	59 477	(D)	(D)	(D)	(D)
3312C 21	Axles (rolled and forged) -----	(D)	(D)	17 859	11 026	(D)	(D)	(D)	(D)
3312C 23	Track spikes -----	-	-	49 237	31 864	(D)	(D)	(D)	(D)
	Pipe and tubes:								
33176 12	Line pipe -----	(D)	(D)	1 125 925	753 461	1 121 144	750 291	4 781	3 170
33176 19	Oil country goods -----	(D)	(D)	1 314 715	1 369 489	1 306 394	1 363 944	8 321	5 545
	Pressure tubing:								
33176 21	Seamless -----	(D)	(D)	66 196	108 341	(D)	(D)	(D)	(D)
33176 22	Welded -----	(D)	(D)	98 519	119 512	(D)	(D)	(D)	(D)
	Mechanical tubing:								
33176 23	Seamless -----	(D)	(D)	108 410	149 528	(D)	(D)	(D)	(D)
33176 24	Welded -----	25 474	37 331	1 369 091	1 062 597	1 317 840	1 021 836	51 251	40 761
33176 27	Structurals -----	(D)	(D)	507 330	232 532	(D)	(D)	(D)	(D)
33176 29	Miscellaneous (including standard pipe) -----	28 136	15 696	1 266 392	846 502	1 230 215	829 278	36 177	17 224
	Wire:								
33155 11	Plain wire -----	159 735	498 170	1 320 069	758 483	1 198 952	693 689	121 117	64 794
33155 15	Galvanized wire -----	47 678	61 559	225 408	152 301	203 969	135 224	21 439	17 077
33155 19	Other coated wire -----	(D)	(D)	168 827	193 103	147 864	176 503	20 963	16 600
	Wire products ⁴ :								
33152 21	Nails and staples -----	(D)	(D)	243 088	193 738	(D)	(D)	(D)	(D)
33159 51	Barbed and twisted wire -----	(D)	(D)	76 827	56 174	(D)	(D)	(D)	(D)
33156 21	Wire fence, woven and welded -----	(D)	(D)	178 625	130 751	(D)	(D)	(D)	(D)
33159 55	Bale ties -----	(D)	(D)	30 313	20 346	(D)	(D)	(D)	(D)
33151 11	Wire rope and cable -----	(D)	(D)	156 213	281 071	(D)	(D)	(D)	(D)
	Wire strand:								
33151 33	For prestressed concrete -----	-	-	128 894	79 107	128 894	79 107	-	-
33151 35	Other -----	(D)	(D)	113 490	92 273	(D)	(D)	(D)	(D)
33157 71	Woven wire netting -----	-	-	54 946	50 351	(D)	(D)	(D)	(D)

See footnotes at end of table.

Table 6a-3. Receipts, Consumption, and Shipments of Steel Mill Products: 1982 and 1977—

[Quantity in short tons; value in thousand dollars. For meaning of abbreviations and symbols, see introductory text]

Quantity in short tons, value in thousand dollars. For meaning of abbreviations and symbols, see introductory text.									
1982 product code ¹	Grade and product	1982							
		Receipts ² (quantity)	Steel consumed in producing plants (quantity)	Shipments ²					
				Total		To other companies		Transfers to other plants of same company	
				Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant
	ALLOY STEEL								
33122 31	Ingots -----	(D)	(D)	301 541	193 557	(D)	(D)	(D)	(D)
33122 36	Semifinished products:								
33122 39	Blooms, billets, slabs, sheet bars, tube rounds, and skelp -----	595 685	223 343	867 806	568 057	416 323	288 482	451 483	279 575
	Wire rods -----	13 494	-	23 544	19 266	(D)	(D)	(D)	(D)
33124 34	Finished products:								
	Plates and structural shapes (3 in. or more) -----	(D)	(D)	1 563 669	1 019 158	(D)	(D)	(D)	(D)
	Sheets and strip:								
	Sheets:								
33123 31	Hot-rolled -----	(D)	(D)	897 264	412 870	752 719	353 522	144 545	59 348
33167 31	Cold-rolled -----	(D)	(D)	159 127	154 408	(D)	(D)	(D)	(D)
33123 34	Galvanized, electrical, and metallic coated -----	(D)	(D)	362 581	355 124	(D)	(D)	(D)	(D)
	Strip:								
33123 39	Hot-rolled -----	(D)	(D)	50 481	32 317	(D)	(D)	(D)	(D)
33167 35	Cold-rolled -----	(D)	(D)	146 173	228 129	(D)	(D)	(D)	(D)
	Bars:								
33124 41	Hot-rolled (including structural shapes less than 3 in.) -----	(D)	(D)	1 288 450	896 731	1 213 963	845 547	74 487	51 184
33168 31	Cold-finished -----	(D)	(D)	142 442	204 215	(D)	(D)	(D)	(D)
	Tool steel:								
33124 48	High speed -----	(D)	(D)	9 760	77 954	(D)	(D)	(D)	(D)
33124 49	Other than high speed -----	(D)	(D)	34 062	106 271	(D)	(D)	(D)	(D)
	Pipe and tubes:								
33176 32	Oil country goods and line pipe -----	(D)	(D)	881 413	1 378 256	(D)	(D)	(D)	(D)
33176 43	Pressure tubing -----	(D)	(D)	36 653	106 115	(D)	(D)	(D)	(D)
33176 45	Mechanical tubing -----	(D)	(D)	329 862	517 277	(D)	(D)	(D)	(D)
33176 48	Miscellaneous (including standard and structural) -----	(D)	(D)	12 149	15 849	(D)	(D)	(D)	(D)
33155 37	Wire (plain and coated) -----	(D)	(D)	27 098	53 117	(D)	(D)	(D)	(D)
	STAINLESS STEEL								
33122 51	Ingots -----	(D)	(D)	226 156	266 002	(D)	(D)	(D)	(D)
33122 56	Semifinished products:								
33122 59	Blooms, billets, slabs, sheet bars, tube rounds, and skelp -----	169 193	6 077	158 973	210 634	41 958	83 781	117 015	126 853
	Wire rods -----	(D)	(D)	15 733	38 710	15 733	38 710	-	-
33124 53	Finished products:								
	Plates and structural shapes -----	(D)	(D)	112 947	285 372	(D)	(D)	(D)	(D)
	Sheets and strip:								
33123 51	Hot-rolled -----	(D)	(D)	288 828	264 219	79 613	86 736	209 215	177 483
33167 51	Cold-rolled -----	76 037	17 067	650 008	1 220 098	616 709	1 136 512	33 299	83 586
	Bars:								
33124 61	Hot-rolled -----	6 421	7	37 796	145 641	31 053	130 578	6 743	15 063
33168 51	Cold-finished -----	(D)	(D)	63 823	254 315	(D)	(D)	(D)	(D)
	Pipe and tubes:								
	Pressure tubing:								
33176 61	Seamless -----	(D)	(D)	15 262	101 724	(D)	(D)	(D)	(D)
33176 62	Welded -----	(D)	(D)	51 135	206 235	(D)	(D)	(D)	(D)
	Mechanical tubing:								
33176 63	Seamless -----	(D)	(D)	1 967	27 138	(D)	(D)	(D)	(D)
33176 64	Welded -----	(D)	(D)	26 005	104 707	(D)	(D)	(D)	(D)
33155 51	Wire -----	4 795	2 360	52 411	190 303	52 089	188 558	322	1 745

Source: Current Industrial Report MA-33B, Steel Mill Products.

¹Product codes in 33155 series also include products in 33125 series; the same applies for 33167 and 33127; 33168 and 33128; and 33176 and 33126.²Excludes receipts and shipments of steel processed on a conversion basis for nonsteel producing companies. Receipts data represent receipts at producing mills only but include receipts from both domestic and foreign sources.³Transfers to other plants of the same company are included with shipments to other companies. Such transfers constitute between 10 and 20 percent for carbon black plate, carbon tool steel, carbon seamless pressure tubing, alloy hot-rolled strip, alloy plates, stainless hot- and cold-rolled strip, and stainless seamless pressure tubing; between 20 and 50 percent for alloy pressure tubing, and alloy mechanical, structural, and miscellaneous pipe and tubing; more than 50 percent for stainless ingots. For all other cases, interplant transfers constitute less than 10 percent of the total.

Con.

1977									1982 product code ¹
Receipts ² (quantity)	Steel consumed in producing plants (quantity)	Shipments ²							
		Total		To other companies		Transfers to other plants of same company			
		Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant	Quantity	Value f.o.b. plant		
185 056	406 912	236 576	133 981	43 346	33 738	193 230	100 243	33122 31	
875 214 (D)	166 737 (D)	1 587 032 56 945	670 323 31 312	580 869 ³ 56 945	274 676 ³ 31 312	1 006 163 (³)	395 647 (³)	33122 36 33122 39	
(D)	(D)	2 302 302	984 582	³ 2 302 302	³ 984 582	(³)	(³)	33124 34	
(D)	(D)	984 770	318 997	810 196	264 246	174 574	54 751	33123 31	
(D)	(D)	77 089	52 039	³ 77 089	³ 52 039	(³)	(³)	33167 31	
(D)	(D)	559 802	405 207	³ 559 802	³ 405 207	(³)	(³)	33123 34	
(D)	(D)	103 354	50 941	³ 103 354	³ 50 941	(³)	(³)	33123 39	
(D)	(D)	99 647	170 052	95 655	155 721	3 992	14 331	33167 35	
195 639 202	67 541 167	2 436 779 257 702	1 143 072 221 485	2 267 405 ³ 257 702	1 067 896 ³ 221 485	169 374 (³)	75 176 (³)	33124 41 33168 31	
(D)	(D)	25 364	134 019	³ 25 364	³ 134 019	(³)	(³)	33124 48	
(D)	(D)	58 708	159 924	53 249	153 147	5 459	6 777	33124 49	
(D)	(D)	42 912	78 948	³ 42 912	³ 78 948	(³)	(³)	33176 32	
(D)	(D)	541 700	496 715	³ 541 700	³ 496 715	(³)	(³)	33176 43	
(D)	(D)	85 372	66 272	³ 85 372	³ 66 272	(³)	(³)	33176 45 33176 48 33155 37	
41 704	13 347	61 414	67 269	³ 61 414	³ 67 269	(³)	(³)	33122 51	
293 208 (D)	7 411 (D)	254 357 24 140	283 884 46 859	41 166 ³ 24 140	56 983 ³ 46 859	213 191 (³)	226 901 (³)	33122 56 33122 59	
5 720	3 066	99 492	204 472	³ 99 492	³ 204 472	(³)	(³)	33124 53	
(D)	(D)	289 797	212 743	8 594	16 205	281 203	196 538	33123 51	
(D)	(D)	428 018	617 974	420 449	609 578	7 569	8 396	33167 51	
(D)	(D)	61 033	131 157	44 914	105 647	16 119	25 510	33124 61	
(D)	(D)	96 059	246 457	³ 96 059	³ 246 457	(³)	(³)	33168 51	
(D)	(D)	17 328	87 557	³ 17 326	³ 87 557	(³)	(³)	33176 61	
(D)	(D)	48 152	178 463	³ 48 152	³ 173 43	(³)	(³)	33176 62	
(D)	(D)	4 339	30 886	³ 4 339	³ 30 886	(³)	(³)	33176 63	
175	7 364	18 288	67 905	³ 18 288	³ 67 905	(³)	(³)	33176 64	
(D)	(D)	41 584	125 578	41 358	124 603	226	975	33155 51	

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
33121, COKE OVEN AND BLAST FURNACE PRODUCTS			3312C, OTHER STEEL MILL PRODUCTS, EXCEPT WIRE PRODUCTS		
United States	1 873.1	3 032.2	United States	395.6	561.1
Alabama	190.2	295.7	Pennsylvania	166.7	160.8
Indiana	53.3	86.9			
Michigan	59.7	84.8	33133, FERROSILICON		
New York	97.9	199.8	United States	243.0	327.4
Ohio	312.2	523.8	Ohio	95.0	(GG)
Pennsylvania	716.6	1 271.4			
Tennessee	19.0	(EE)	33151, NONINSULATED FERROUS WIRE ROPE, CABLE, AND STRAND, PRODUCED IN WIREDRAWING PLANTS (ALSO SEE CODE 34961)		
33122, STEEL INGOT AND SEMIFINISHED SHAPES AND FORMS			United States	522.0	439.1
United States	3 082.0	4 039.3	California	41.0	18.3
Illinois	309.3	(GG)	Ohio	17.0	13.1
New York	116.8	166.6	Pennsylvania	85.1	96.4
Ohio	405.9	823.7			
Pennsylvania	1 116.7	1 332.5	33152, STEEL NAILS AND SPIKES, PRODUCED IN WIREDRAWING PLANTS (ALSO SEE CODE 34967)		
Texas	248.0	119.8	United States	227.8	359.0
33123, HOT ROLLED SHEET AND STRIP			Illinois	45.7	141.4
United States	11 913.5	11 057.8			
Illinois	749.8	764.8	33155, STEEL WIRE, NOT PRODUCED IN STEEL MILLS (ALSO SEE CODE 33125)		
Indiana	3 612.2	2 500.0	United States	1 000.6	729.8
Michigan	1 133.1	1 542.0	California	92.3	72.9
Ohio	2 149.3	1 922.5	Connecticut	62.3	49.2
Pennsylvania	1 176.2	1 485.0	Florida	31.4	20.5
33124, HOT ROLLED BARS AND BAR SHAPES			Illinois	80.0	61.5
United States	8 199.2	9 140.9	Indiana	48.4	(EE)
California	198.5	234.8	Massachusetts	50.9	66.3
Illinois	870.7	1 176.3	Mississippi	27.4	(CC)
Indiana	1 114.7	1 427.8	New Jersey	36.7	17.8
Kentucky	90.1	50.6	New York	26.3	30.6
Michigan	125.6	68.1	Ohio	110.3	124.7
New York	363.6	499.2			
Ohio	698.8	1 031.0	Pennsylvania	73.3	47.0
Pennsylvania	2 161.7	2 466.7	Tennessee	60.7	32.1
Texas	691.9	558.5	Texas	22.4	(CC)
33125, STEEL WIRE, PRODUCED IN STEEL MILLS (ALSO SEE CODE 33155)			33156, FENCING AND FENCE GATES, PRODUCED IN WIREDRAWING PLANTS (ALSO SEE CODE 34966)		
United States	392.4	606.3	United States	301.6	280.3
California	8.7	(FF)	California	28.1	33.1
Illinois	85.5	177.7	Illinois	43.2	50.2
33126, STEEL PIPE AND TUBES, PRODUCED IN STEEL MILLS (ALSO SEE CODE 33176)			Oklahoma	39.0	(FF)
United States	3 561.5	3 000.4	Pennsylvania	38.4	(EE)
Ohio	755.6	969.7	Texas	29.6	34.0
Pennsylvania	1 370.9	1 076.5	33157, FERROUS WIRE CLOTH AND OTHER FERROUS WOVEN WIRE PRODUCTS, PRODUCED IN WIREDRAWING PLANTS (ALSO SEE CODE 34964)		
33127, COLD ROLLED STEEL SHEET AND STRIP, PRODUCED IN STEEL MILLS (ALSO SEE CODE 33167)			United States	68.0	84.5
United States	5 162.6	6 953.9	Illinois	20.3	(EE)
Indiana	1 666.7	1 645.5			
Ohio	1 308.7	1 775.2	33128, COLD FINISHED STEEL BARS AND BAR SHAPES, PRODUCED IN STEEL MILLS (ALSO SEE CODE 33168)		
Pennsylvania	896.6	1 516.9	United States	358.5	421.9
South Carolina	10.2	(NA)	Pennsylvania	159.7	146.6

See footnotes at end of table.

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1982 and 1977—Con.

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than \$2 million in product class shipments or they disclose data for individual companies in 1982. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product class and geographic area	1982 value of product shipments	1977 value of product shipments	Product class and geographic area	1982 value of product shipments	1977 value of product shipments
33159, OTHER FABRICATED FERROUS WIRE PRODUCTS, EXCEPT SPRINGS, PRODUCED IN WIREDRAWING PLANTS (ALSO SEE CODE 34968)			33167, COLD ROLLED STEEL SHEET AND STRIP, NOT PRODUCED IN STEEL MILLS (ALSO SEE CODE 33127)—Con.		
United States	547.2	639.5	Michigan	294.3	291.6
California	40.9	34.6	Ohio	427.7	504.8
Florida	34.7	26.2	Pennsylvania	571.7	319.7
Illinois	40.9	70.9			
Indiana	13.6	34.8	33168, COLD FINISHED STEEL BARS AND BAR SHAPES, NOT PRODUCED IN STEEL MILLS (ALSO SEE CODE 33128)		
Missouri	28.2	40.4			
Ohio	19.1	25.2	United States	905.8	909.2
Pennsylvania	104.6	116.1	California	22.3	30.9
Texas	55.1	26.4	Connecticut	32.3	30.9
			Illinois	96.5	129.0
33167, COLD ROLLED STEEL SHEET AND STRIP, NOT PRODUCED IN STEEL MILLS (ALSO SEE CODE 33127)			Indiana	172.5	239.8
United States	1 815.3	1 628.5	Michigan	72.0	72.8
California	50.6	56.1	New York	25.5	(EE)
Connecticut	169.8	177.4	Ohio	179.5	185.1
Illinois	58.8	(GG)	Pennsylvania	120.5	127.7
			Texas	13.7	(AA)

Note: For 1977, the following value ranges (in million dollars) substitute for actual figures withheld to avoid disclosing data for individual companies: AA—less than \$2.0 but not 0; BB—\$2.0 to \$4.9; CC—\$5.0 to \$9.9; EE—\$10.0 to \$19.9; FF—\$20.0 to \$49.9; GG—\$50.0 or more.

Table 6c. Product Classes—Value Shipped by All Producers: 1982 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

1982 product code	Product class	1982	1981 ¹	1980 ¹	1979 ¹	1978 ¹	1977	1972	1967
3312-	Blast furnaces and steel mills	35 456.8	53 854.1	47 386.2	52 457.5	46 025.3	39 368.0	22 210.5	18 102.3
33121	Coke oven and blast furnace products	1 873.1	3 140.8	2 869.1	3 491.1	3 251.6	3 032.2	1 497.3	1 257.4
33122	Steel ingot and semifinished shapes and forms	3 082.0	4 954.9	5 098.9	5 905.8	5 003.9	4 039.3	2 502.9	2 526.5
33123	Hot rolled sheet and strip	11 913.5	14 382.9	12 784.8	14 637.4	12 988.3	11 057.8	6 740.1	4 533.3
33124	Hot rolled bars and bar shapes	8 199.2	12 944.6	12 033.1	13 270.4	11 222.2	9 140.9	5 612.8	4 456.4
33125	Steel wire, produced in steel mills (also see code 33155)	392.4	625.6	586.6	746.6	665.2	606.3	397.6	377.6
33126	Steel pipe and tubes, produced in steel mills (also see code 33176)	3 561.5	7 638.5	5 058.4	4 081.9	3 726.6	3 000.4	1 501.0	1 554.1
33127	Cold rolled steel sheet and strip, produced in steel mills (also see code 33167)	5 162.6	7 862.6	6 700.3	8 326.9	7 441.1	6 953.9	3 134.1	2 607.0
33128	Cold finished steel bars and bar shapes, produced in steel mills (also see code 33168)	358.5	679.9	704.0	610.1	489.7	421.9	268.7	256.6
3312A	Seamless rolled ring ferrous forgings, produced in steel mills (also see code 34627)	(D)	137.0	127.5	120.3	92.7	93.6	(NA)	(NA)
3312B	Open die or smith ferrous forgings, hammer or press, produced in steel mills (also see code 34628)	(D)	470.4	403.2	410.8	374.0	288.9	(NA)	(NA)
3312C	Other steel mill products, except wire products	395.6	833.4	882.6	781.6	573.0	561.1	(NA)	(NA)
33120	Blast furnace and steel mill products, n.s.k.	108.5	183.8	137.8	74.6	(S)	171.7	(NA)	(NA)
3313-	Electrometallurgical products	728.0	1 166.7	1 245.7	1 327.0	1 019.4	944.1	552.3	403.4
33131	Ferromanganese	(D)	147.9	188.0	197.2	155.2	159.1	(NA)	(NA)
33132	Ferrosilicon	75.1	130.5	159.7	180.0	130.2	163.5	116.6	104.5
33133	Other ferroalloy products produced in electric furnaces	243.0	445.6	415.5	462.6	394.5	327.4	180.8	102.9
33134	Electrometallurgical products, n.s.k.	43.3	(2)	(2)	21.1	(S)	3.9	2.5	1.9
3315-	Steel wire and related products	2 761.1	3 281.2	3 169.0	3 370.8	2 932.8	2 608.4	1 512.6	1 062.3
33151	Noninsulated ferrous wire rope, cable, and strand, produced in wiredrawing plants (also see code 34961)	522.0	600.6	585.4	549.3	429.3	439.1	270.2	164.2
33152	Steel nails and spikes, produced in wiredrawing plants (also see code 34967)	227.8	339.5	310.8	404.2	399.9	359.0	248.5	158.8
33155	Steel wire, not produced in steel mills (also see code 33125)	1 000.6	911.8	871.5	987.9	804.1	729.8	328.7	300.5
33156	Fencing and fence gates, produced in wiredrawing plants (also see code 34966)	301.6	322.6	342.4	353.6	327.7	280.3	172.1	75.8
33157	Ferrous wire cloth and other ferrous woven wire products, produced in wiredrawing plants (also see code 34964)	68.0	115.6	121.0	115.3	103.1	94.5	53.6	35.4
33159	Other fabricated ferrous wire products, except springs, produced in wiredrawing plants (also see code 34968)	547.2	873.4	840.7	884.0	722.0	639.5	390.0	294.4
33150	Steel wire and related products, n.s.k.	93.9	117.6	97.2	76.6	(S)	76.2	49.5	33.2
3316-	Cold finishing of steel shapes	2 803.4	3 223.6	2 942.7	3 535.8	3 098.9	2 562.8	1 487.1	945.8
33167	Cold rolled steel sheet and strip, not produced in steel mills (also see code 33127)	1 815.3	1 952.4	1 747.9	2 143.7	1 927.7	1 628.5	903.8	554.9
33168	Cold finished steel bars and bar shapes, not produced in steel mills (also see code 33128)	905.8	1 186.8	1 119.9	1 330.6	1 142.3	909.2	558.9	372.6
33160	Cold finishing of steel shapes, n.s.k.	82.4	84.4	74.9	61.5	(S)	25.1	24.4	18.3
33170	Steel pipe and tubes	3 657.1	4 928.3	3 713.3	3 596.9	3 217.2	2 620.3	1 264.5	1 075.0

¹Figures are estimates derived from a representative sample of manufacturing establishments canvassed in annual survey of manufactures and, therefore, may differ from results that would be obtained from a complete canvass of all manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures volumes for this period.

²Withheld because estimated value derived for code is a negative figure.

Table 7. Materials Consumed by Kind: 1982 and 1977

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3312, BLAST FURNACES AND STEEL MILLS				
	Materials, parts, containers, and supplies -----	(X)	18 238.5	(X)	21 841.0
121120	Coal used in the production of coke ----- 1,000 s tons..	37 394.4	2 455.2	77 533.3	3 977.7
101112	Iron ore, including manganiferous: ----- 1,000 gross wt..	14 280.6	281.0	30 203.2	757.2
101123	Concentrates ----- do..	11 151.8	487.0	30 568.8	913.6
101125	Agglomerates ----- do..	39 196.9	2 068.6	59 990.0	1 907.6
106112	Manganese ore, including ferruginous (containing 10 percent manganese) ----- 1,000 gross wt..	239.8	12.4	979.8	38.4
106113	Ferroalloy, ores (excluding manganese) ----- do..	(D)	(⁴)	(X)	35.0
331051	Pig iron, excluding silvery iron ----- 1,000 s tons..	1 128.4	180.5	5 154.9	624.3
190023	Iron and steel purchased scrap ----- do..	28 161.2	2 049.6	34 503.5	2 183.6
331081	Steel rails for rerolling ----- do..	*217.5	21.8	203.3	16.6
190020	Aluminum and aluminum-base alloy scrap and dross ----- do..	(D)	(⁴)	(D)	(³)
	Nonferrous metals, alloys, and ferroalloys (ingot, pig, shot, etc.):				
333402	Aluminum ----- do..	63.0	75.9	82.3	82.3
333113	Copper, including both refined unalloyed and copper-base alloy raw materials ----- do..	3.7	5.0	6.8	9.3
333971	Nickel, excluding ferronickel ----- do..	46.9	180.5	50.9	200.5
333975	Tin ----- do..	10.7	136.7	20.1	185.1
333232	Lead ----- do..	14.6	12.7	14.3	10.7
333348	Zinc ----- do..	217.9	176.8	242.1	176.5
333982	Cobalt ----- mil lb..	892.4	11.7	1.7	9.0
331313	Ferromanganese, silicomanganese, and manganese ----- 1,000 s tons..	513.9	232.6	1 087.0	477.1
331320	Ferrochromium ----- do..	230.5	145.2	372.3	217.8
331331	Ferrosilicon (more than 8 percent silicon) ----- do..	159.5	94.3	253.7	114.2
331343	Ferromolybdenum ----- do..	6.8	70.0	12.1	73.5
331345	Ferronickel ----- do..	24.6	56.8	53.8	102.8
331351	Ferrotungsten ----- do..	.1	1.6	.6	11.2
331353	Ferrovanadium ----- do..	2.7	31.9	5.6	49.7
331342	Other ferroalloys, including silvery iron ----- do..	66.5	141.3	104.5	111.4
329502	Dead-burned magnesite ----- do..	(D)	(⁴)	10.4	1.4
281930	Sulfuric acid (100 percent H ₂ SO ₄) ----- do..	**402.6	22.9	618.4	28.7
281361	Oxygen, including high and low purity ----- mil cu ft..	124 588.5	210.3	195 656.1	195.0
280005	Industrial chemicals (except sulfuric acid and oxygen) ----- do..	61.5	79.6	(X)	67.0
291103	Lubricating oils and greases and other petroleum products ----- do..	46.1	95.9	(X)	86.0
325501	Clay refractories ----- 1,000 s tons..	(S)	200.0	(S)	224.1
329701	Nonclay refractories ----- do..	(S)	145.7	(S)	183.4
332161	Gray iron ingot molds and stools ----- do..	*838.6	257.3	1 813.2	353.7
	Fluxes:				
329503	Limestone ----- do..	8 748.8	85.0	18 256.4	112.6
327403	Lime, including quicklime and dead-burned dolomite ----- do..	4 153.8	209.8	9 883.4	293.7
329505	Fluorspar ----- do..	*234.1	30.9	540.4	50.9
329506	Other fluxes ----- do..	*805.2	28.1	4 389.1	51.0
331005	Ingot, semifinished shapes (blooms, billets, etc.), and other steel shapes received for further processing, except for drawing wire ----- do..	3.2	3 847.1	(X)	4 051.5
362411	Carbon and graphite electrodes ----- do..	1.1	259.4	(X)	132.0
354402	Industrial dies, molds, jigs, and fixtures ----- do..	13.6	36.6	(X)	46.0
970099	All other materials and components, parts, containers, and supplies consumed (see note) ----- do..	(X)	⁴³ 413.2	(X)	³³ 417.7
971000	Materials, parts, containers, and supplies, n.s.k. ² ----- do..	(X)	387.6	(X)	261.2
	INDUSTRY 3313, ELECTROMETALLURGICAL PRODUCTS				
	Materials, parts, containers, and supplies -----	(X)	335.2	(X)	475.4
106112	Manganese ore ----- gross weight..	201.7	16.6	469.2	35.6
106113	Ferroalloy ores (excluding manganese) ----- do..	303.2	24.5	(X)	(⁵)
325501	Clay refractories ----- 1,000 s tons..	(S)	3.3	8.7	.5
329701	Nonclay refractories ----- do..	*.9	.8	(D)	(D)
	Ferroalloys:				
331313	Ferromanganese, silicomanganese, and manganese ----- do..			(D)	(D)
331320	Ferrochromium ----- do..			(D)	(D)
331331	Ferrosilicon (more than 8 percent silicon) ----- do..			(D)	(D)
331343	Ferromolybdenum ----- do..				
331345	Ferronickel ----- do..	(S)	37.9		
331351	Ferrotungsten ----- do..			(D)	(D)
331353	Ferrovanadium ----- do..				
331342	Other ferroalloys, including silvery iron ----- do..				
190023	Iron and steel purchased scrap ----- do..	275.9	20.1	407.0	18.2
	Fluxes:				
329503	Limestone ----- do..			(D)	(⁵)
327403	Lime (including quicklime and dead-burned dolomite) ----- do..	20.2	1.1	(D)	(⁵)
362411	Carbon and graphite electrodes ----- do..		13.7	(X)	(⁵)
354402	Industrial dies, molds, jigs, and fixtures ----- do..		.2	(X)	(⁵)
970099	All other materials and components, parts, containers, and supplies ----- do..	(X)	181.7	(X)	^{5334.6}
971000	Materials, parts, containers, and supplies, n.s.k. ² ----- do..	(X)	35.3	(X)	28.9
	INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS				
	Materials, parts, containers, and supplies -----	(X)	1 275.1	(X)	1 200.1
	Nonferrous metals, alloys, and ferroalloys:				
333113	Copper, including both refined unalloyed and copper-base alloy raw materials ----- 1,000 s tons..	(S)	7.4	1.2	2.1
333975	Tin ----- do..			.1	.6

See footnotes at end of table.

Table 7. Materials Consumed by Kind: 1982 and 1977—Con.

Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendix. For meaning of abbreviations and symbols, see introductory text]

1982 material code	Material	1982		1977	
		Quantity ¹	Delivered cost (million dollars)	Quantity ¹	Delivered cost (million dollars)
	INDUSTRY 3315, STEEL WIRE AND RELATED PRODUCTS—Con.				
	Nonferrous metals, alloys, and ferroalloys:—Con.				
333232	Lead ----- 1,000 s tons..	**18.0	1.3	4.0	2.4
333348	Zinc ----- do..	235.3	16.5	23.8	16.3
281930	Sulfuric acid (100 percent H ₂ SO ₄) ----- do..	126.1	.7	11.2	.7
	Steel for drawing wire:				
	Rods:				
331061	Carbon steel ----- do..	*4 801.8	673.1	2 055.7	570.8
331063	Alloy steel, except stainless ----- do..	*104.7	48.5	**50.5	28.4
331065	Stainless steel ----- do..	18.5	27.9	(S)	37.4
	Wire for redrawing:				
331073	Carbon steel ----- do..	(S)	135.4	**239.7	95.2
331075	Alloy steel ----- do..	25.1	11.4	(S)	12.7
331077	Stainless steel ----- do..	(S)	24.0	6.0	15.2
331079	Other steel mill shapes for drawing wire ----- do..	**72.8	26.9	(S)	9.7
331005	Ingots, semifinished shapes (blooms, billets, etc.), and other steel shapes received for further process, except for drawing wire -----	(X)	35.7	(X)	41.0
970099	All other materials and components, parts, containers, and supplies -----	(X)	159.3	(X)	208.1
971000	Materials, parts, containers, and supplies, n.s.k. ² -----	(X)	107.0	(X)	159.5
	INDUSTRY 3316, COLD FINISHING OF STEEL SHAPES				
	(Material data was not collected for this industry)				
	INDUSTRY 3317, STEEL PIPE AND TUBES				
	(Material data was not collected for this industry)				

¹For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

²Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

³For 1977, material code 190020 was combined with material code 970099 to avoid disclosing data for individual companies.

⁴For 1982, material codes 106113, 190020, and 329502 are combined with 970099 to avoid disclosing data for individual companies.

⁵For 1977, material codes 106113, 329503, 327403, 362411, and 354402 were included with material code 970099.

Table 8a. Blast Furnaces and Steel Mills (Industry 3312)—Departmental Operations by Degree of Integration: 1982 and 1977

[For meaning of abbreviations and symbols, see introductory text For explanation of terms, see appendices.]

Department	Production-worker hours (millions)						Production-worker wages (million dollars)					
	Total	Fully integrated works ¹	Partially integrated works ¹			Non-integrated works ¹	Total	Fully integrated works ¹	Partially integrated works ¹			Non-integrated works ¹
			Total	With	Without				Total	With	Without	
1982												
All departments -----	375.7	204.5	171.2	24.1	101.4	45.6	6 181.6	3 512.3	2 669.3	401.0	1 572.0	696.3
Coke ovens -----	22.9	16.6	6.3	-	.4	5.9	370.7	283.7	87.0	-	5.3	81.7
Blast furnaces -----	12.6	10.5	2.1	1.7	-	.4	214.8	178.6	36.2	28.3	-	7.9
Steel department (furnaces) -----	39.5	17.0	22.5	2.6	18.4	1.5	568.5	285.7	282.8	46.6	210.2	26.0
Rolling and finishing mills:												
Sheet and strip mills -----	41.9	26.4	15.5	3.9	6.6	5.0	753.0	450.9	302.1	66.9	123.2	112.0
Tin mills -----	7.8	6.2	1.6	-	.1	1.5	134.5	107.9	26.6	-	1.3	25.3
Bar mills, including rebars -----	19.8	6.5	13.3	.3	10.5	2.5	291.7	106.8	184.9	4.1	146.1	34.7
Wiredrawing mills -----	4.2	1.1	3.1	(Z)	2.6	.5	62.3	17.7	44.6	.2	37.7	6.7
Pipe mills -----	10.4	7.4	3.0	1.3	1.3	.4	161.6	114.9	46.7	21.6	18.1	7.0
Other mills, including semifinishing, plate, and structural -----	37.0	17.5	19.5	5.3	12.4	1.8	561.4	304.7	256.7	87.1	147.8	21.8
Foundry (iron or steel) -----	2.1	1.8	.3	.1	.2	-	35.2	30.2	5.0	2.4	2.6	-
Forging (presses, hammers, or upsetters) -----	3.3	1.4	1.9	.5	1.3	.1	54.0	24.9	29.1	8.7	18.2	2.2
Other manufacturing or fabricating department (nuts, bolts, containers, etc.) -----	11.3	.6	10.7	-	9.9	.8	173.4	11.9	161.5	-	148.0	13.5
Service or auxiliary operations and all other activities -----	119.8	74.2	45.6	8.5	33.9	3.2	1 988.1	1 269.2	718.9	135.1	541.1	42.7
Unspecified -----	43.1	17.3	25.8	-	3.8	22.0	812.2	325.2	487.0	-	172.4	314.8

Table 8a. Blast Furnaces and Steel Mills (Industry 3312)—Departmental Operations by Degree of Integration: 1982 and 1977—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Department	Production-worker hours (millions)						Production-worker wages (million dollars)					
	Total	Fully integrated works ¹	Partially integrated works ¹			Non-integrated works ¹	Total	Fully integrated works ¹	Partially integrated works ¹			Non-integrated works ¹
			Total	With	Without				Total	With	Without	
1977												
All departments	668.7	360.9	231.9	90.2	141.7	75.8	6 653.0	3 712.7	2 230.4	877.2	1 353.2	710.1
Coke ovens	35.8	23.7	3.2	(D)	(D)	8.9	344.1	237.1	30.5	(D)	(D)	76.5
Blast furnaces	30.8	21.7	7.0	7.0	—	2.1	303.1	221.1	62.5	62.5	—	19.5
Steel department (furnaces)	58.4	30.1	26.0	9.1	16.9	2.3	586.0	306.6	259.6	95.9	163.7	19.8
Rolling and finishing mills:												
Sheet and strip mills	67.9	47.1	17.5	8.4	9.1	3.3	719.7	509.9	177.1	83.9	93.2	32.7
Tin mills	15.7	13.1	(D)	(D)	—	(D)	168.7	(D)	(D)	(D)	—	(D)
Bar mills, including rebars	37.8	16.9	17.8	3.2	14.6	3.1	347.3	162.3	160.1	31.4	128.7	24.9
Wiredrawing mills	8.7	3.7	2.5	—	2.5	2.5	82.3	34.2	24.2	—	24.2	23.9
Pipe mills	24.7	12.6	11.8	3.4	8.4	.3	229.0	117.8	109.3	32.9	76.4	1.9
Other mills, including semifinishing, plate, and structural	76.7	42.8	33.1	20.1	13.0	.8	754.1	441.8	305.0	178.4	126.6	7.3
Foundry (iron or steel)	7.2	(D)	3.8	1.4	2.4	(D)	64.1	(D)	31.9	13.7	18.2	(D)
Forging (presses, hammers, or upsetters)	7.4	2.9	3.0	(D)	(D)	1.5	69.4	28.9	28.9	(D)	(D)	11.6
Other manufacturing or fabricating departments (nuts, bolts, containers, etc.)	16.6	(D)	(D)	(D)	(D)	(D)	141.7	18.8	(D)	(D)	(D)	(D)
Service or auxiliary operations and all other activities	217.2	131.4	78.2	34.2	44.0	7.6	2 195.5	1 347.7	775.9	342.4	433.5	71.9
Unspecified	63.8	9.7	15.1	—	15.1	38.9	648.0	115.8	154.9	—	154.9	377.5

¹For definition, see Description of Industries in text.

Table 8b. Steel Wire Mills, Cold Finishing Mills, and Pipe and Tube Mills—Department Operations: 1982 and 1977

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes.]

Department	Steel wire drawing, etc. (SIC 3315)		Cold finishing mills (SIC 3316)		Steel pipe and tube (SIC 3317)	
	Worker-hours (millions)	Production-worker wages (million dollars)	Worker-hours (millions)	Production-worker wages (million dollars)	Worker-hours (millions)	Production-worker wages (million dollars)
1982						
All departments	31.0	296.7	19.7	245.6	37.6	460.6
Rolling and finishing mills:						
Sheet and strip mills	—	—	7.4	97.5	.1	3.1
Tin mills	—	—	.2	4.1	—	—
Bar mills, including rebars .....	.5	8.0	1.7	20.2	.1	.9
Wiredrawing mills	13.1	139.2	1.9	24.0	—	—
Pipe mills .....	.2	1.9	.3	2.3	16.1	208.4
Other mills, including semifinishing, plate, and structural .....	.9	11.6	1.1	6.8	2.9	40.7
Other manufacturing or fabricating departments (nuts, bolts, forgings, containers, etc.)	5.4	49.0	.2	2.0	2.5	27.9
Service or auxiliary operations and all other activities	2.2	21.5	2.3	26.4	2.9	28.2
Unspecified	8.7	65.5	4.6	62.3	13.0	151.4
1977						
All departments	49.0	304.9	28.7	238.8	43.7	330.6
Rolling and finishing mills:						
Sheet and strip mills	(Z)	(D)	10.4	98.4	—	—
Tin mills	—	—	(Z)	(D)	—	—
Bar mills, including rebars	—	—	(S)	(S)	(D)	(D)
Wiredrawing mills	15.6	104.9	1.6	11.3	—	—
Pipe mills	(D)	(D)	(D)	(D)	20.0	173.7
Other mills, including semifinishing, plate, and structural	(D)	(D)	1.9	16.6	4.2	31.0
Other manufacturing or fabricating departments (nuts, bolts, forgings, containers, etc.)	12.6	82.3	2.0	13.2	8.4	50.5
Service or auxiliary operations and all other activities	3.5	20.9	(S)	(S)	(S)	(S)
Unspecified	16.9	94.5	(S)	(S)	(S)	(S)

Table 9. Force Account Construction Workers: 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

SIC code	Industry	All establishments		Establishments reporting employees engaged in construction			
		Employees (1,000)	Payroll (millions)	Total		Engaged in construction ¹	
				Employees (1,000)	Payroll (millions)	Employees (1,000)	Payroll (millions)
3312	Blast furnaces and steel mills -----	295.8	8 677.9	57.0	1 660.4	9.2	248.3
3315	Steel wire and related products -----	22.0	442.9	6.6	130.9	.8	15.3
3316	Cold finishing of steel shapes -----	15.4	367.9	3.8	94.6	.3	7.5
3317	Steel pipe and tubes -----	27.0	648.1	5.1	118.8	.9	19.9

¹Number and gross earnings of employees on payroll engaged in construction of major additions or alterations to plans and utilized as a separate work force. Workers engaged in regular maintenance and repair operations are not included.

APPENDIX A.

Explanation of Terms

This appendix is in two sections. Section 1 includes items which were requested of all establishments that were mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) that were not included on the report forms but were derived from information collected on the forms. Section 2 covers supplementary items that were requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in tables 3c and 3d of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies—As discussed in the Introduction, a separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operates at different physical locations, even if the individual locations are producing the same line of goods, a separate report was requested for each location. If the company operates in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on the number of custodial employees, capital expenditures, inventories, or any shipments from inventories during the portion of the year the plant was in operation.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction to Part 1 of the General Summary subject report.

Employment and related items—The regular report forms requested separate information on production workers as of a payroll period for each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees—This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period ending nearest the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers—This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees—This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment who are engaged in the construction of major additions or alterations to the plant and who are utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls was also requested of auxiliary units (e.g., administrative offices, warehouses, and research and development laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual industries shown in this report. They are included in the general summary and geographic area reports and in the final bound volumes as a separate category.

Payrolls—This item includes the gross earnings of all employees on the payroll of operating manufacturing establishments paid in the calendar year 1982. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, all bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers

of corporations, but excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payroll of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours—This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials—This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, components, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed—In addition to the total cost of materials, which every establishment was required to report, information was also collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the specific materials consumed is shown in table 7 if appropriate to the industry. Establishments consuming less than a specified amount (usually \$10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as "not specified by kind." (See the Introduction for the importance of administrative records in the industry.)

Value of shipments—This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further

processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products—As in previous censuses, data were collected for almost all industries on the quantity and value of individual products shipped. In the 1982 census program, information was collected on the output of approximately 11,000 individual product items. The term "product," as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases it may be much more detailed and, in other cases, it is more aggregative. For example, "pharmaceutical preparations" was distributed into over 100 items; whereas, "motor gasoline" was reported as a single item.

Approximately 6,000 of the product items were listed separately on the 1982 census report forms. Data for about 5,000 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1982 for these items, as derived from the commodity surveys, are shown in the "products shipped" table (table 6a) together with the tieline total value collected in the census for reconciliation purposes.

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1977 information is presented for most products.

Typically, both quantity and value of shipments information was collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers was also collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production was also collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products—To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the

individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Introduction, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1982 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, and the like. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments—The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication, since the products of some industries are used as materials by others. With some important exceptions, such as for motor vehicles and parts, this duplication is not significant at the four-digit industry level. However, it is significant at the two-digit and three-digit industry group level because these totals often include industries that represent successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the "Food" group and the addition of pulp mills to paper mills in the "Paper and Allied Products" group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the census of manufactures.

Value added by manufacture—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

Because of the change in instructions for reporting inventories for 1982, the 1982 figure for value added is not strictly comparable to prior-year data. This is explained more fully in the inventories section below.

"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures—For establishments in operation and establishments under construction but not yet in operation, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures exclude that portion of expenditures leased from nonmanufacturing concerns, new facilities owned by the Federal Government but operated under

contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers were also requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred to the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; i.e., it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form and is subject to sampling error (see table 3d). The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in both tables 3a and 3d. The figure in table 3a is a census universe total and may differ from the results of the ASM sample shown in table 3d. Since the figures in table 3d are subject to sampling error, they are not considered as reliable as the universe figures.

End-of-year inventories—Respondents were asked to report their 1981 and 1982 end-of-year inventories at cost or market. Effective with the 1982 Economic Censuses, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications. Inventories and value added data estimated on a basis comparable to the historical data, using the reported information for 1982, are shown in footnote 4 of table 1a. However, the end-of-1981 figure shown in this footnote may differ from the corresponding value published as part of the 1981 Annual Survey of Manufactures.

This difference at the four-digit SIC level is due primarily to the effects of industry shifts. As described in the Industry Classification of Establishments section of the Introduction, ASM noncertainty plants are allowed to shift from one industry to another in a census year; whereas, they are "frozen" in a particular industry in ASM years. Other explanations for this difference include the effects of sampling and processing errors and revisions to end-of-1981 data reported by respondents.

In using inventory data by stage of fabrication for "all industries" and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw

materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and "all manufacturing," which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios—These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

As noted in the Introduction, an establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary

products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

Supplemental labor costs—Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans. They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees. While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records do not generally provide reliable figures on net employee benefits of these types.

Cost of purchased services—ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, and communication services. Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property are also included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force are also excluded.

The response coverage ratio shown in table 3d for each of the three types of purchased services listed above is a measure of the extent to which respondents reported for each item. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight; see section 3) for those ASM establishments that reported the

specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

Electric energy used for heat and power—Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy and quantity of generated-less-sold electric energy were collected only on the ASM forms. The cost and quantity of purchased electric energy represent the amount actually used during the year for heat and power. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

Beginning- and end-of-year depreciable assets—The data encompass all fixed depreciable assets on the books of establishments at the beginning and at the end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are non-depreciable capital assets, including inventories and intangible assets, such as patent rights and royalties. Also excluded are land and depletable assets, such as timber and mineral rights.

The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

New and used capital expenditures—The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

Breakdown of new capital expenditures for machinery and equipment—ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

The category "automobiles, trucks, etc., for highway use" is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement. Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

The "not specified by kind" or n.s.k. item for expenditures for new machinery and buildings, shown in table 3d, represents the total machinery and equipment expenditures for establishments that did not break down their expenditures for the three specific categories. This means that for most industries the specific categories are understated.

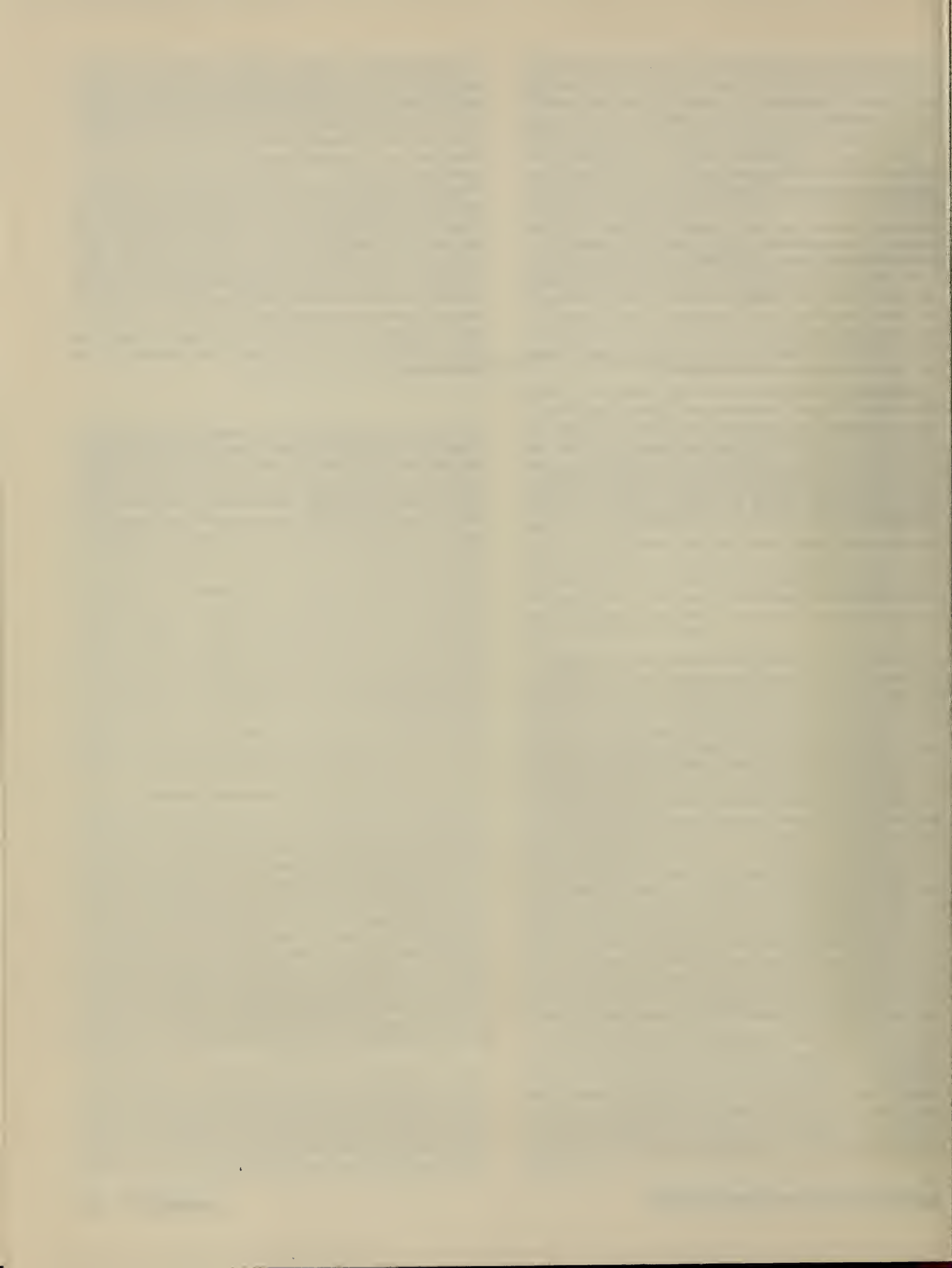
Retirements—Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1982. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent was also requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

Rental payments—This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

If there were assets at an establishment rented from another company, and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

Depreciation charges—This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.



APPENDIX B.

Annual Survey of Manufactures (ASM) Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The Annual Survey of Manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 55,000 manufacturing establishments selected from a total of about 225,000 establishments. These 225,000 establishments represent all manufacturing establishments of multiunit companies and all single-unit manufacturing establishments with five employees or more tabulated in the 1977 Census of Manufactures. This mail portion is supplemented by a Social Security Administration list of new manufacturing establishments opened after 1977. The individual establishments were defined as the sampling unit for this sample. This is a change from the previous ASM sample when companies were used as the sampling unit. The implication of this change is that the probability of selection of any establishment relates only to the size of the establishment itself and is independent of the size of the company with which the establishment is affiliated. The efficiencies associated with the change to an establishment sample have made it possible to reduce the mail sample panel from 70,000 establishments in 1978 to 55,000 establishments in the current panel.

The nonmail portion of the survey includes all single-unit establishments that were tabulated with less than five employees in the 1977 Census of Manufactures. Although this portion contained approximately 125,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of other Federal agencies. This administrative record information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under special conditions, which safeguard the confidentiality of both tax and census records. Estimates for data for these small establishments were developed using industry averages in conjunction with the administrative information.

The corresponding estimates for the mail and nonmail establishments were added together, along with the adjusted base-year differences as defined in Description of Estimating Procedures below. The remaining description of the survey sample relates only to the mail portion of the ASM sample.

All establishments with 250 employees or more in the 1977 census were included in the survey panel with certainty. These establishments collectively account for approximately 65 percent of the total value of shipments for manufacturing establishments in the 1977 census. Smaller establishments were sampled with probabilities ranging from 1.000 down to 0.005 in accordance with mathematical theory for optimum allocation of a sample.

The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. For establishments included in the 1977 Census of Manufactures, the measure of size depended directly upon each establishment's 1977 product class values and the

historic variability of the year-to-year shipments of each product class. Roughly equivalent measures of size were assigned to postcensus birth establishments based on their industry codes and anticipated payroll and employment.

The method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight to differences in employment, value added, and other general statistics, for these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of establishments into and out of a given sample panel without introducing a bias into the survey estimates.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1978-1981 were computed using a modified "difference estimate" formula. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1977 census published number for an item total and the linear ASM estimate of the total for 1977. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

This base-year difference was then adjusted to reflect the estimated growth at the four-digit or, in the case of product classes, five-digit based Standard Industrial Classification (SIC) level from 1977 to the year of the survey; for example, 1981. It should be noted that due to processing constraints, the growth factors lagged one year; i.e., if 1981 is the survey year, they were not based on the estimated growth from 1977 to 1981 but rather the growth from 1977 to 1980. This one-year lag had negligible effect on the estimates, particularly at the total manufacturing level where the adjusted base-year difference accounted for less than 1 percent of the estimate for total value of shipments.

These adjusted base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail establishments, to produce the estimates for the years 1978-1981. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

The 1982 sample data included in table 3d were also developed using difference estimates. However, since the universe totals for the census year (1977 or 1982) were not known, a modification of the procedure described above was necessary. For each item in table 3d, except purchased services and breakdown of expenditures for new machinery and equipment (see further description in appendix A, section 2), linear

estimates of the publication totals from the ASM mail sample were adjusted by the difference between imputed census totals and the corresponding ASM mail sample estimates of these imputed totals. These imputed totals are obtained by applying industry average ratios to control item values at the establishment level. For example, an imputed total beginning assets figure is obtained by multiplying each establishment's total value of shipments by the industry (four-digit SIC) average for the ratio of beginning assets to shipments.

Separate estimates for the nonmail establishments were not developed. However, their contribution to the publication estimates is reflected in the difference adjustment.

The method of inventory valuation percentages included in table 3c was developed using both complete census information and ASM estimates. The percentages for the four major categories (LIFO, non-LIFO, valuation method not reported, and LIFO reported without associated value and reserve) were derived from the complete census and correspond to the values included in table 3d. The percentages for the specific non-LIFO methods of valuations (FIFO, average cost, specific costs, etc.) are ratio estimates developed from the ASM in conjunction with the census universe estimate for the total of the non-LIFO methods.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. Except for table 3c, they are presented in the form of relative standard errors, the standard errors divided by the estimated values to which they refer. In table 3c, "absolute" standard errors of the estimates are presented.

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.

2. From two standard errors below to two standard errors above the derived estimate for about 19 out of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total and about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors would also occur if a complete canvass were to be conducted under the same conditions as the survey.

Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

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PUBLICATION PROGRAM

1982 CENSUS OF MANUFACTURES

Publications of the 1982 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publication order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233

Preliminary Reports

Preliminary industry data are issued in 443 separate reports covering 452 industries (or combinations of industries). Preliminary data for States are grouped and released in reports for each of the nine census geographic divisions.

Final Reports

Final detailed statistics are issued in separate paperbound reports.

Industry series—82 reports (MC82-I-20A to -39D)

Each of the 82 reports provides information for a group of related industries (e.g., "dairy products" includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 452 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment and degree of primary product specialization. Statistics are given on production of specific products and consumption of energy and various materials by industry.

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A separate report for each State and the District of Columbia presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, SMSA's, and large industrial counties and places. Comparative statistics for earlier census years are shown for the State and large SMSA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics—including inventories, assets, rents, and energy costs—are presented only in statewide totals.

Subject series—10 reports (MC82-S-1 to -10)

Each of the 10 reports contains detailed statistics for an individual subject, such as: selected materials consumed, selected metalworking

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Final Report Volumes

Final paperbound reports subsequently are assembled and reissued in clothbound volumes.

- Volume I. Summary and Subject Statistics—data previously issued in series MC82-S.
 - Part 1. Major Groups 20 to 26
 - Part 2. Major Groups 27 to 34
 - Part 3. Major Groups 35 to 39
- Volume II. Industry Statistics—data previously issued in series MC82-I.
 - Part 1. Alabama to Montana
 - Part 2. Nebraska to Wyoming
- Volume III. Geographic Area Statistics—data previously issued in series MC82-A.
 - Part 1. Alabama to Montana
 - Part 2. Nebraska to Wyoming

Microfiche

All published data also are available on microfiche.

Computer Tapes

Selected data—generally detailed information by industry and/or geographic area—also are available on public-use computer tapes. For the selected data, these tapes will provide the same information found in the final reports. Public-use computer tapes are available for users who wish to summarize, rearrange, or process large amounts of data. These tapes, with corresponding technical documentation, are sold by Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, D.C. 20233.

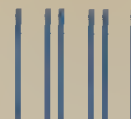
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Data on retail trade, wholesale trade, service industries, construction industries, mineral industries, enterprise statistics, minority-owned businesses, women-owned businesses, and transportation also are issued as part of the 1982 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. All published reports and microfiche are sold by the Superintendent of Documents, U. S. Government Printing Office. Appropriate announcements and order forms describing these products are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, D.C. 20233.

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